DEVELOPMENT ASSESSMENT REPORT - DA196/18
34 LOT RESIDENTIAL SUBDIVISION
111 IAN HOLT DRIVE LIDSDALE (Lot 2 DP 574754)

1. PROPOSAL

Council has received a development application (DA196/18) that seeks development consent for the subdivision of land at 111 Ian Holt Drive, Lidsdale into 34 residential lots. The proposal involves the creation of 33 new residential allotments with one lot to contain the residual parcel and the existing dwelling and outbuildings. The proposal also includes two new public roads off Ian Holt Drive and will include upgrade and widening works to Maddox Lane along the property frontage.

The land is identified as Lot 2 DP 574754 and has an area of 11.31ha. All proposed lots will have an area equal to or greater than 2000m^2. The existing dwelling and outbuildings located on the western side of the property are listed as a heritage item and will be retained as part of the development (proposed Lot 1). Access to the Lot 1 will remain via the existing access off Ian Holt Drive, though this lot will also have secondary frontage to one of the new internal roads.

The topography of the land is undulating with the highest point located towards the south-eastern boundary. The land contains several farm dams (all to be filled) and adjoins the Coxs River in its north-western corner.

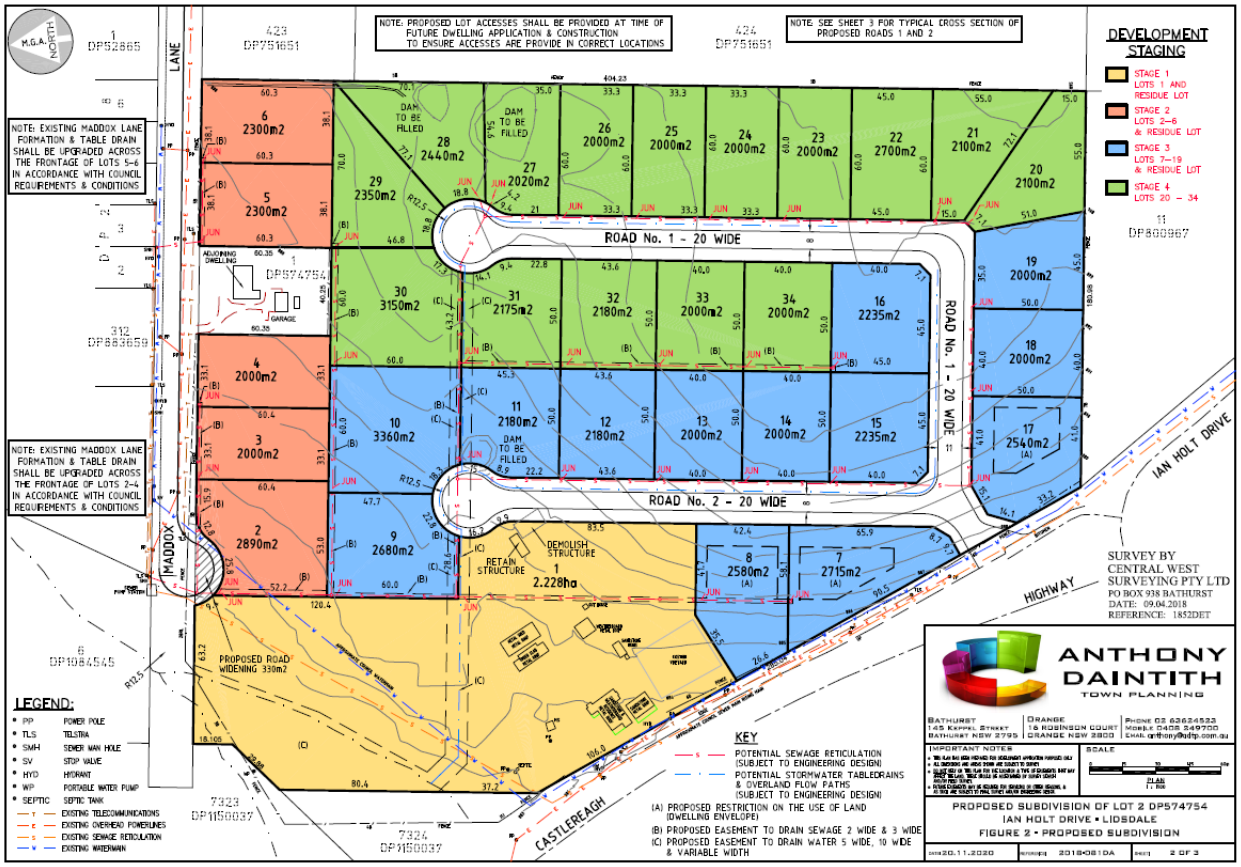
Vegetation on the land comprises predominantly grassland subject to livestock grazing and small-scale cropping. There is a large stand of remnant pine trees to the south west of the land. The land is identified as bushfire prone and the development comprises integrated development requiring a Bushfire Safety Authority issued by the Rural Fire Service under the *Rural Fires Act 1997*.

The development will be undertaken in four stages:

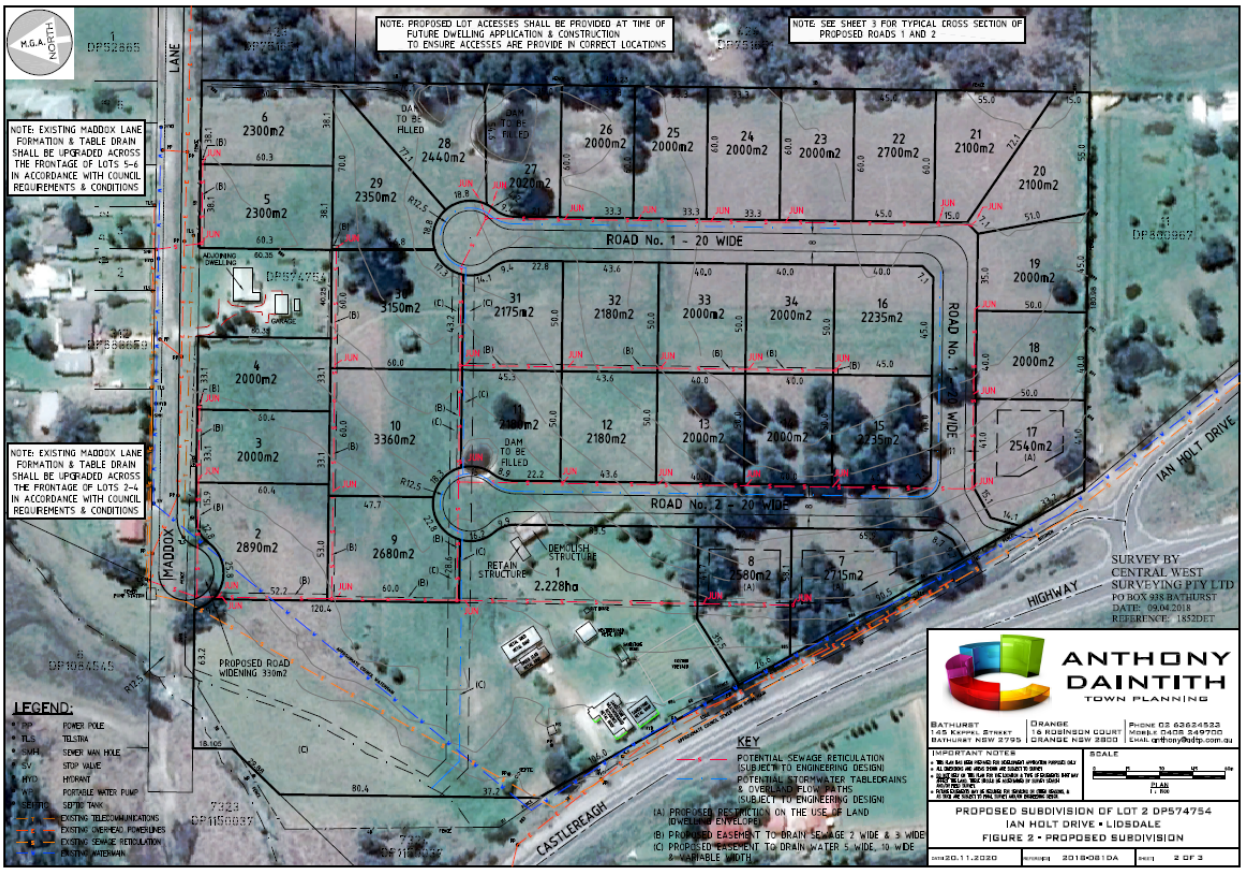
- Stage 1 – creation of Lot 1 and a residue (development) lot;
- Stage 2 – creation of five lots (Lots 2 to 6) fronting Maddox Lane and residue;
- Stage 3 – creation of 13 lots (Lots 7 to 19) and construction of new roads, and
- Stage 4 – creation of 15 lots (Lots 20 to 34) and construction of new road.

The plan of subdivision and stages is shown on the following page, along with an aerial photo with the subdivision plan outlined.

Plan of Subdivision and Staging



Aerial Photo with subdivision plan overlay



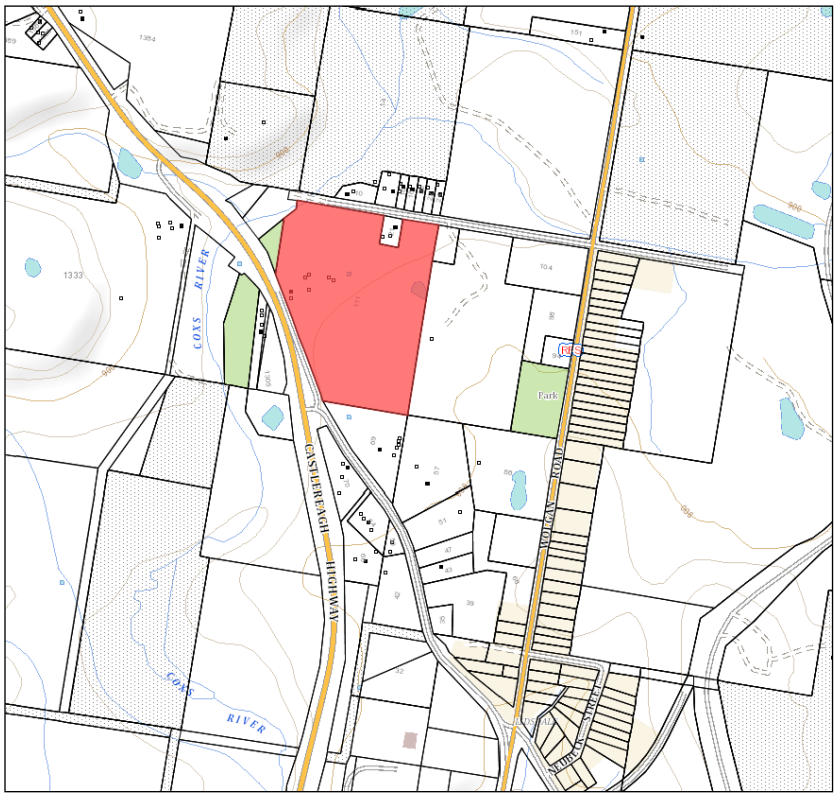
2. SUMMARY

To assess and recommend determination of DA196/18 with a recommendation for approval subject to conditions.

3. LOCATION OF THE PROPOSAL

Legal Description :	Lot 2 DP 574754
Property Address :	Woodlands 111 Ian Holt Drive LIDSDALE NSW 2790

The location of the proposal and its context in relation to the Lidsdale village is shown in the following map.



4. ZONING

The land is zoned R5 Large Lot Residential in accordance with the *Lithgow Local Environmental Plan 2014* (LEP).

5. PERMISSIBILITY

The subdivision of land requires development consent under clause 2.6 of the *Lithgow Local Environmental Plan 2014* (LEP). A proposal for a subdivision must address the relevant LEP requirements for consent to be granted.

5.1 POLICY IMPLICATIONS (OTHER THAN DCPs)

Policy 1.2 Acquisition and Disposal of Assets
This Policy applies when Council is considering the acquisition and/or development of assets. This application proposes the construction of sewer, water and stormwater infrastructure, two new roads and a small road widening for a cul-de-sac head at the end of Maddox Lane as infrastructure to service the subdivision all of which will be dedicated to Council as public assets.

To address the requirements of this policy, the developer will be required to construct the assets to Council's specifications prior to a maintenance period and subsequent dedication if the development is approved.

Policy 7.1 Filling and Levelling of Land
Unless otherwise provided by an Environmental Planning Instrument or Development Control Plan, a development application be required in the following circumstances:
1. Where land is subject to inundation by floodwaters, or
2. Where excavation or the depth of fill exceeds 900mm.
Separate development applications are not required where the cut and/or fill is identified in a development application for a structure on the land.

The development proposes earthworks to be undertaken for the two new road networks, water and sewer connections and drainage works. These are included as part of the development application and are consistent with the provisions of the *Lithgow Local Environmental Plan 2014*.

Policy 7.10 Voluntary Planning Agreements
A Voluntary Planning Agreement (VPA) has been negotiated with the developer in accordance with Section 7.4 of the *Environmental Planning & Assessment Act 1979* in relation to this proposal. The plan has been created as per the Policy and will be advertised appropriately for compliance.

The developer has agreed to make a contribution of $3,000.00 per lot (total of $99,000) to go towards community facilities and open space plus an additional $5,000 per lot for lots 2 to 6 (total of $25,000) to go towards roadworks on Maddox Lane between the subject land and Wolgan Road.

Lithgow Community Participation Plan
The Development Application was lodged prior to the endorsement of Council's Community Participation Plan 2019 and was notified under Council's previous notification policy (Policy No.7.5) that has now been repealed. The proposal publicly exhibited for 21 days initially in September 2018. The plans for the proposal were later amended and the proposal was exhibited for a second time for 21 days in September 2019. The current plans subject to this assessment were subject to public exhibition for 21 days in December 2020.

5.2 FINANCIAL IMPLICATIONS

Development Servicing Plan for Water Supply and Sewerage
Section 64 of the *Local Government Act 199*3 enables a local government council to levy developer charges for water supply and sewerage. Lithgow City Council levies these charges under its Development Servicing Plan for Water & Sewerage 2018 (DSP).

The DSP allows Council to require a monetary contribution for the provision of water supply and sewerage services, proportional to the demands generated by development and to facilitate the provision of water supply and sewerage assets to meet the levels of service. Developer charges apply to all building and development activities where Council determines that such activities increase the demand for water supply and/or sewerage services. The proposed subdivision development will increase the demand for water and sewer services and will be levied contributions under the DSP. These will be payable prior to the issue of a Subdivision Certificate and will be included in consent conditions.

Section 94A (Section 7.12) Development Contributions Plan 2015
The Section 94A plan does not apply to this development given it is for a subdivision.

Planning Agreements
A Voluntary Planning Agreement (VPA) has been negotiated with the developer in accordance with Section 7.4 of the *Environmental Planning & Assessment Act 1979* in relation to this proposal. The plan has been created as per the Policy and will be advertised appropriately for compliance.

The developer has agreed to make a contribution of $3,000.00 per lot (total of $102,000) to go towards community facilities and open space plus an additional $5,000 per lot for lots 2 to 6 (total of $25,000) to go towards roadworks on Maddox Lane between the subject land and Wolgan Road.

Lithgow City Council Open Space and Recreation Needs Study February 2011
Council's open space and recreation needs study does not specifically identify when a dedication of open space is required for any new urban subdivisions. However, a common industry standard alluded to in the study is:

• rate of 2.83ha/1,000 people, with approximately 65% of this space to be active/sports area.
• residents should be within 400m walking distance from a public open space, and 500m from an active open space area/playground.

The proposal is for 34 allotments. If the subdivision is calculated for approximately 5 people per future dwellings this equates to the subdivision generating approximately 170 occupants overall. Utilising the 2.83ha per 1,000 head of population calculation would equate to an open space dedication of 0.48 of a hectare. This needs to be considered in the context of the subdivision and its location.

Council owns a recreation park on Lot 133 DP751651, Wolgan Road, Lidsdale. This area contains open space area and a tennis court. The majority of lots are located approximately 1.5km walking distance from the park, however the lots fronting Maddox Lane are between 500m and 800m from the park.

The study also states:
Council will ensure that provision of recreation and open space opportunities accurately reflect current community needs and Council resource constraints, and protect these opportunities. It is important to ensure that planning decisions made today do not jeopardise the decision making of the future.

Range (Accessibility Standard)
The accessibility standard is used to guide appropriate spatial distribution of open space. The recommended spacing and distribution of recreation and sport parks will vary depending on the park hierarchy, the population to be serviced and the predominant land use as indicated in Table 10 below.

Infrastructure Type	***Local***	***District***	***City-wide***
Recreation park	*0.5km in urban areas*	*2.5km in urban areas*	*n/a*
Sport park	*n/a*	*2.5-5km in urban areas*	*Local government area*

Given the size of the allotments having a minimum area of 2000m^2, the location of the subdivision being on the outskirts of the Lidsdale village, adjacent to the rural zone and given the population of Lidsdale, dedicated open space within the subdivision would not be feasible, practical or reflect the community needs. It would also create a constraint to Council's resources due to the management and upkeep of the land.

Therefore a planning agreement has been negotiated between Council and the applicant with a monetary contribution to be provided in lieu of the provision of open space.

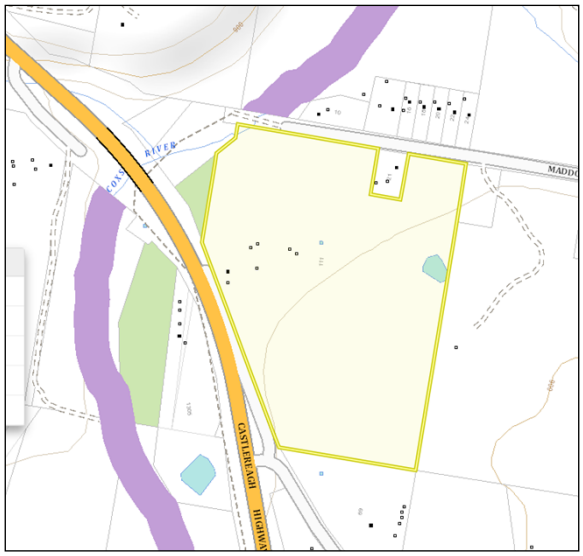
5.3 LEGAL IMPLICATIONS

Environmental Protection and Biodiversity Conservation Act 1991
No federally listed Threatened Species or Endangered Ecological Community is required to be cleared as a result of this application. Accordingly, there are no legal implications of this Act on the proposed development.

Local Government Act 1993
If this application is approved, the applicant must obtain a written Section 68 application for connection to Council's water and sewerage supply. This must be lodged and approved prior to commencement of any work on site and shall be at full cost to the applicant.

The Section 68 application requires the submission of all detailed engineering drawings/design, specifications and any applicably supporting information for the proposed works. All conditions of the Section 68 Approval must be complied with prior to the release of the Subdivision Certificate.

Biodiversity Conservation Act 2016
Council has determined that the Biodiversity Offset Scheme threshold BOS has not been triggered as no native vegetation removal is required to facilitate the subdivision (subject to the relocation of the proposed cul-de-sac head on Maddox Lane slightly to the east). Vegetation to be removed to facilitate the development consists of non-native pine trees and some wild apple trees and cultivated grassland for cropping and livestock grazing. No part of the subject land is identified on the Biodiversity Values Map, however the riparian corridor of Coxs River is mapped as having Biodiversity Values to the north and west of the subject land, as shown below.



The areas mapped extend approximately 20m from the centre of the river. On the subject land, the nearest works are 32m from the Coxs River. Therefore, a Biodiversity Development Assessment Report is not required for the development.

Council has also undertaken a desktop assessment of threatened species through the BioNet Atlas and did not find any threatened species present either on the site or within the locality.

Based on the above, it is considered that the development is not likely to significantly impact on threatened species and therefore a test of significance and ecological assessment as required under Section 7.3 of the BC Act is not required.

Roads Act 1993
The proposed roads within this subdivision are to be dedicated to Council under this Act. Council will become the controlling authority for the road once construction works are satisfactory and the subdivision certificate released. The proposal will meet the requirements of the Act subject to conditions of consent.

Rural Fires Act 1997
The development is for a "special fire protection purpose" and requires approval under section 100B of this Act. The development is also "integrated development" under Section 4.46 of the *Environmental Planning and Assessment Act 1979.* Accordingly, the approval of the Rural Fire Service and the issue of a Bushfire Safety Authority is required before Council can grant consent to the development. The original submitted design for the subdivision was granted a Bushfire Safety Authority by the Rural Fire Service on 7 March 2019. The revised plan of subdivision has been referred to the Rural Fire Service for an updated Bushfire Safety Authority. At the time of writing, due to technical difficulties, the revised Bushfire Safety Authority has not been issued. Following discussion with RFS officers, it is anticipated that a revised Bushfire Safety Authority is forthcoming with conditions consistent with that previously issued on 7 March 2019.

Water Management Act 2000
The amended plans identified roadworks on waterfront land. Accordingly, the development was considered to be Integrated Development under this act (via Section 4.46 of the EP&A Act 1979) and the application was referred to the Natural Resources

Access Regulator (pursuant to section 91(2) of the Water Management Act). However, the applicant has agreed to relocate the proposed cul-de-sac head to the east to avoid the removal of two trees resulting in the works no longer being on waterfront land and thus Controlled Activity Approval is not required.

Environmental Planning and Assessment Act 1979

In determining a development application, a consent authority is required to take into consideration the matters of relevance under Section 4.15 of the *Environmental Planning and Assessment Act 1979*. These matters for consideration are as follows:

5.3.1 Any Environmental Planning Instruments

State Environmental Planning Policy (Koala Habitat Protection) 2020

Part 2 of the SEPP requires the assessment of a development application to which the SEPP applies to consider whether the land is potential koala habitat and/or core koala habitat and to take into account any relevant guidelines.

The SEPP defines potential and core koala habitat as follows:

> ***potential koala habitat*** *means areas of native vegetation where trees of the types listed in Schedule 2 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component.*
>
> ***core koala habitat*** *means an area of land with a resident population of koalas, evidenced by attributes such as breeding females, being females with young, and recent sightings of and historical records of a population.*

The subject land is predominantly cleared of native vegetation and no native vegetation removal is required to facilitate the subdivision (subject to the relocation of the proposed cul-de-sac head on Maddox Lane slightly to the east). The subject land is therefore not considered to be potential koala habitat.

For land that is not considered to be potential koala habitat, there is no requirement to assess whether the land is core koala habitat.

The relevant guidelines to consider are contained in Planning Circular B35. The guidelines relate to determining whether potential koala habitat is core koala habitat and the requirements for plans of management for development on land that is identified as core koala habitat. As the subject land is not considered to be potential koala habitat, the guidelines do not apply to the assessment of the development application.

Based on the above, the proposal is consistent with the requirements of this SEPP.

State Environmental Planning Policy (Infrastructure) 2007

Certain "traffic generating development" requires concurrence from Transport for NSW (formerly RMS) under the provisions of this SEPP. The development does not warrant a referral to Transport for NSW as it is below the threshold for traffic generating activity and the development does not have a direct frontage to the Castlereagh Highway. However, the application was referred for consideration due to the location of the

proposed road in close proximity to the Castlereagh Highway intersection with Ian Holt Drive. The authority's comments are found later in this report.

State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011

The development takes place within the Sydney drinking water catchment and requires concurrence from Water NSW in accordance with the provisions of this SEPP. The application was referred to Water NSW who has assessed the proposal and have confirmed the proposed development can achieve a neutral or beneficial effect on water quality providing appropriate conditions are included in any development consent.

Conditions recommended by Water NSW have been included in Schedule A.

State Environmental Planning Policy No 55—Remediation of Land

This SEPP requires the consideration of potential contamination and remediation as part of a development proposal.

The adjoining land (Lots 423 and 424 DP 751651) along the eastern boundary is known to have contain a former timber treatment facility that was involved in the treatement of pine timber products using a compound mixture of: arsenic, copper, chromium and other chemicals. The treatment facility has been decommissioned and buildings demolished but residual materials are present on the site. In 2013 a soil contamination assessment was undertaken on the site as part of a proposal for a telecommunications facility (DA136/13) and identified the presence of potential contaminants and which have been visually identified on the land.

To address the requirements of this SEPP and based on the information above, in April 2020, the applicant commissioned a Preliminary Contamination Investigation Report that identified high levels of arsenic, chromium and copper in soil samples. Remediation works were undertaken in May, June and July 2020. The selected remediation method was the excavation of impacted material and disposal off-site to landfill. A total of approximately 182.5 tonnes of soil was transported off site.

Following the remediation, a Validation Report was submitted, concluding that no soil staining or odour was observed in or around the excavation area at the time of the final inspection. Statistical analysis of samples collected from the final validation excavation indicated the upper confidence levels and averages of arsenic, copper and chromium were below the adopted thresholds.

The dams and excavation at the centre of the investigation area were backfilled with compacted virgin excavated natural material from on-site.

The Validation Report also recommends that an unexpected finds protocol should be implemented if contaminants are suspected during development works. An appropriate condition has been included in Schedule A.

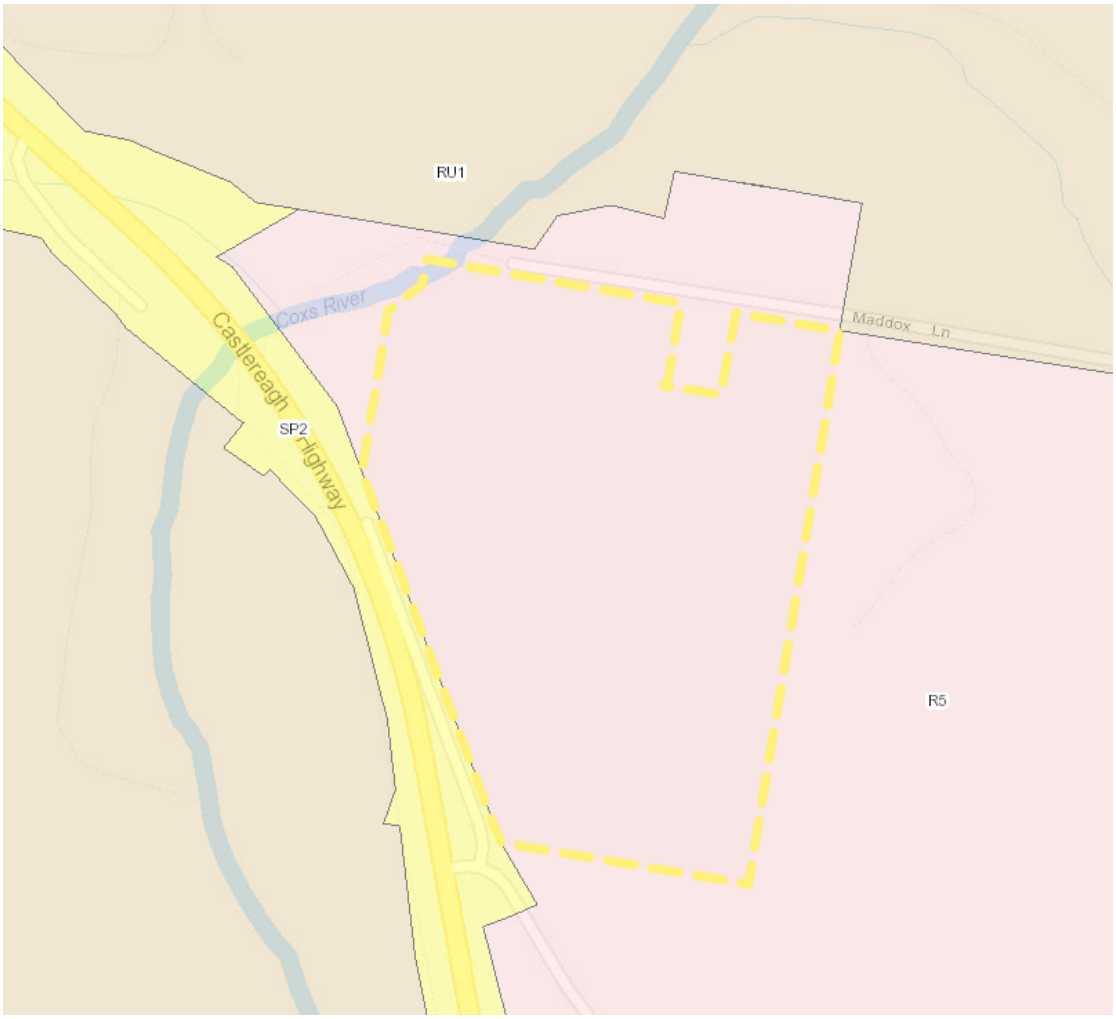
The remediation area is shown on the following plan.

Council considers that the remediation works and validation report demonstrates that the subject land is now suitable for residential purposes.

Lithgow Local Environmental Plan 2014 **(LEP)**

LEP 2014 – Compliance Check		
Clause		**Compliance**
Land Use table	R5 Large Lot Residential	Yes
4.1	Minimum subdivision lot size	Yes
5.10	Heritage conservation	Yes
7.1	Earthworks	Yes
7.2	Flood Planning	Yes
7.3	Stormwater management	Yes
7.4	Terrestrial biodiversity	Yes
7.5	Groundwater vulnerability	Yes
7.6	Riparian land and watercourses	Yes
7.7	Sensitive lands	Yes
7.10	Essential Services	Yes

The land is zoned R5 Large Lot Residential under the LEP provisions as illustrated in the map extract below.



The objectives of the R5 Large Lot Residential Zone are as follows:

> ***1 Objectives of the R5 Zone***
> *• To provide residential housing in a rural setting while preserving, and minimising impacts on, environmentally sensitive locations and scenic quality.*
> *• To ensure that large residential lots do not hinder the proper and orderly development of urban areas in the future.*
> *• To ensure that development in the area does not unreasonably increase the demand for public services or public facilities.*
> *• To minimise conflict between land uses within this zone and land uses within adjoining zones.*
> *• To limit development to areas in reasonable proximity to the settled town centres of Lithgow, Wallerawang and Portland to strengthen settlement hierarchy.*
> *• To maintain or improve the water quality of receiving water catchments.*

The proposed subdivision would allow lots to be developed for future residential purposes within a rural setting. The development will not hinder the future development of urban areas. The proponent has submitted a Voluntary Planning Agreement that will provide a financial contribution towards the provision community facilities in the local area and for road improvements to address the demand generated

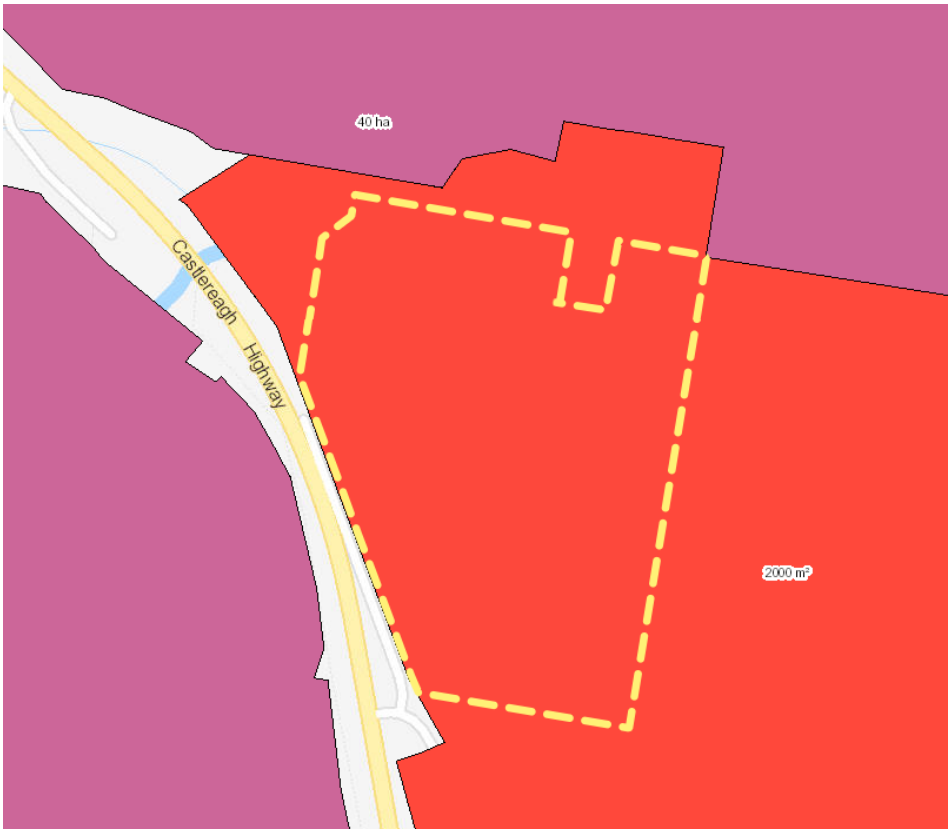
by the development. Water quality was assessed by WaterNSW, who have recommended measures and conditions to be included on the consent.

Based on the above, the proposed subdivision of land is considered to be consistent with the zone objectives.

Clause 4.1 Minimum Subdivision Lot Size
This clause provides regulations on minimum lot sizes for certain areas as follows:

> ***4.1 Minimum subdivision lot size***
> *(1) The objectives of this clause are as follows:*
> *(a) to minimise the cost to the community of:*
> *(i) fragmented and isolated development of rural land, and*
> *(ii) providing, extending and maintaining public amenities and services,*
> *(b) to ensure that the character and landscape setting of an area is protected and enhanced by any development,*
> *(c) to promote development on appropriately sized lots and to ensure access to available essential services.*
> *(2) This clause applies to a subdivision of any land shown on the Lot Size Map that requires development consent and that is carried out after the commencement of this Plan.*
> *(3) The size of any lot resulting from a subdivision of land to which this clause applies is not to be less than the minimum size shown on the Lot Size Map in relation to that land.*

The minimum lot size prescribed for the land is 2000m² as illustrated in the map extract below:



The lots sizes proposed range from 2000m^2 and 2.228ha and are consistent with the requirements of this clause.

Clause 5.10 Heritage Conservation

The land contains a heritage item identified as "Woodlands". Council's Heritage Inventory Study 1997-8 states that the building was constructed in 1860 as a hotel and was named the Carriers Arms. The hotel was renamed the Woodlands Inn in 1874 by the new owner. The property was utilised as a trading post for Cobb & Co with a meathouse and stone dairy (now in ruins), a wooden dairy with surviving bails and a wooden stables. The original stone inn was renovated in 1900 with a new stone kitchen. In the 1920's the Lidsdale Post Office was operated from the Woodlands.

Council's Heritage Advisor has reviewed and provided the following comments on the original subdivision layout:

- Woodlands is a highly significant early property in the Lithgow area with State level cultural significance values.
- Settled in the late 1850s the property has played an important role at the crossing to the Cox's River with its 1860's inn, the Carrier's Arms renamed Woodlands in 1867, a well-serviced Cobb & Co trading post in the 1870s and Lidsdale post office in the 1920s.
- The property once included a stone dairy, a wooden dairy, a meat house, stables and other outbuildings.
- There appears to be an uncertainty in available documents as to the exact number of buildings and at least one is now in ruins.
- It is possible that there were other earlier buildings within the property which may have archaeological significance.

The proposal will retain the former hotel building with a reasonable curtilage that protects a majority of the associated buildings and other improvements on the land including a small vineyard. It is proposed to demolish a dilapidated former stable to facilitate the construction of a new internal road.

The subject land is also located in the vicinity of other heritage items, including six of the seven dwellings on the northern side of Maddox Lane, known as the Maddox Lane Group. The Inventory Sheet for the group notes that they are an exceptional suite of housing for workers of varying status erected in an empty street by a local coal magnate. The proposed lot layout will facilitate future residential development along Maddox Lane that will complement the existing built form of the locality. Any future proposals for dwellings on the lots fronting Maddox Lane will be assessed having regard to their impact on the heritage significance of the group when development applications for those dwellings are received by Council. The proposed upgrading of Maddox Lane will maintain a rural style table drain stormwater system and not install kerb and guttering.

The layout of the subdivision has been amended twice during the assessment process to address a range of issues. The current plans have reduced the curtilage around the main heritage buildings and have resulted in the proposed demolition a dilapidated structure that was once used as a stable.

On balance, it is considered that the current subdivision layout provides an appropriate curtilage around the significant heritage significant items. It is to be noted that the

whole property will retain heritage significance under Council's LEP 2014 until further investigations are undertaken and the LEP is amended accordingly.

Clause 7.1 Earthworks
The development proposes earthworks to be undertaken for the new roadworks, water and sewer connections and drainage works. These are included as part of the development application. The extent of earthworks to facilitate the development will be relatively minor as the road pattern generally follows the existing contours of the land. The development has been assessed by Water NSW to ensure that the proposal will have minimal impacts on water quality. The development has also been assessed by the Natural Resources Access Regulator to ensure minimal impacts on the Coxs River. Subject to conditions recommended by these Agencies, the proposal will have minimal environmental impacts.

The earthworks proposed will facilitate the creation of lots on which dwellings can be erected. The scale of earthworks will not result in impacts on the amenity of adjoining properties. Appropriate conditions are recommended regarding:

- the use of virgin natural excavated material for any required imported fill, and
- procedures to be undertaken in the event of disturbance of any archaeological relics or Aboriginal artefacts.

Given the above, it is considered that the development will comply with the requirements of clause 7.1 of the LEP.

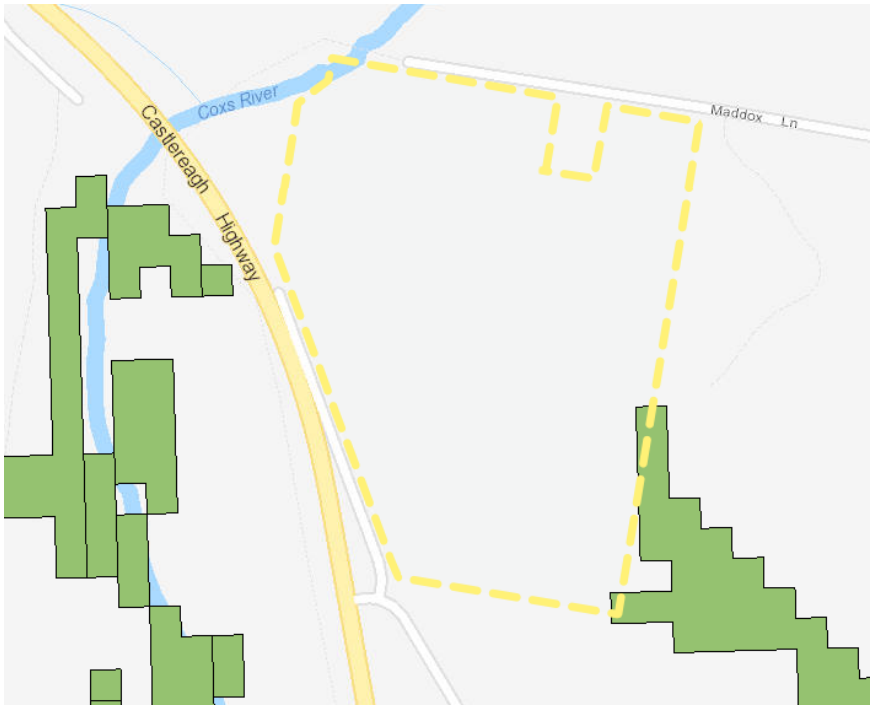
Clause 7.2 Flooding
The subject land is not identified in the LEP Mapping as flood prone, however there is potential for the north-western corner of the lot to be affected by flooding of the Coxs River from time to time. The proposal includes roadworks in the vicinity of the Coxs River and issues have been raised in submissions regarding the location of the sewer pump station and the potential for proposed Lot 2 to be affected by flooding.

It is not uncommon for sewer pump stations to be located in low-lying areas as the sewerage system operates by gravity to the lowest point. Proposed lot 2 is located above the sewer pump station and above the level of some existing dwellings in the vicinity. There will be adequate room on proposed lot 2 for a dwelling to be erected in a position that will not be affected by flooding. In relation to the proposed cul-de-sac head of Maddox Lane, detailed design work will need to be undertaken to demonstrate that the roadworks will comply with Council's Engineering Design requirements. It is therefore considered that the proposal is satisfactory having regard to clause 7.2 of the LEP.

Clause 7.3 Stormwater Management
The proposal has been designed to maximise water permeable surfaces with minimal road networks and stormwater infrastructure. The development will have minimal runoff to adjoining properties as it will be retained onsite and dispersed adequately into adjoining water catchments as per existing arrangements. The development has been assessed by appropriate authorities with no objection to the stormwater management proposals subject to appropriate conditions of consent being imposed, if approved.

The lots will require inter-allotment drainage with the construction of pit and pipe to direct the stormwater across the site and into the swale for treatment. This is considered satisfactory for the development.

Clause 7.4 Terrestrial Biodiversity
A small corner of the subject land is mapped as containing potential biodiversity, as shown on the map below.

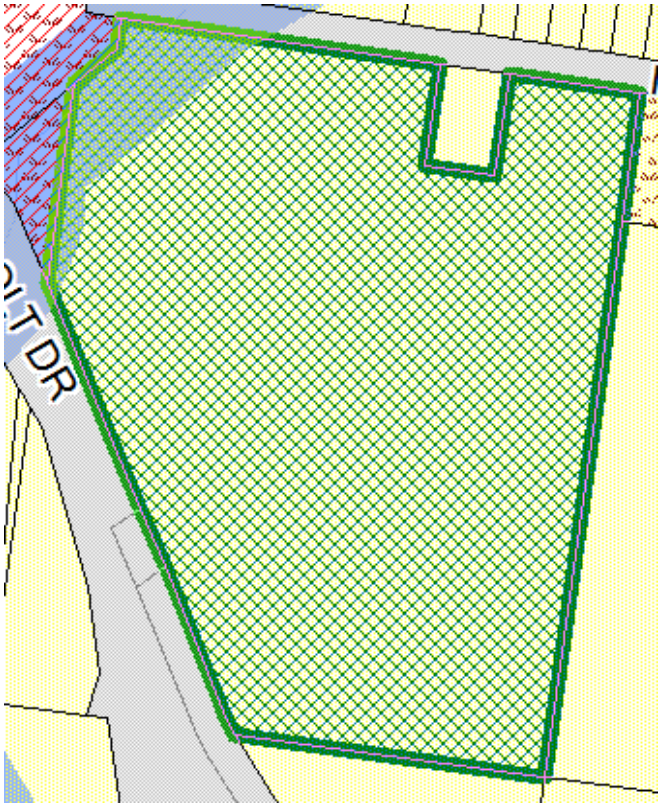


The proposed subdivision is not expected to have any adverse impact on ecological value or significant flora and fauna on the property as only earthworks, drainage works and civil works are proposed at this stage and any vegetation clearing is limited to non-native pine trees and some wild apple trees. The applicant has agreed to relocate the proposed cul-de-sac head on Maddox Lane slightly to the east to avoid impact on two native trees in this location).

Clause 7.5 Groundwater Vulnerability
The land is identified as being subject to groundwater vulnerability and consideration is to be given to the impacts of the development on groundwater.

The proposal will involve subdivision works that are not expected to result in any adverse impacts on groundwater. Subdivision works can be managed to avoid any significant adverse environmental impact. Identified land contamination has been remediated and conditions will be imposed to address any unexpected finds during civil works. The application was referred to WaterNSW who have provided appropriate conditions of consent to protect water quality.

Clause 7.6 Riparian Land and Watercourses
Part of the land is located within the riparian corridor of Coxs River, as shown on the map below:



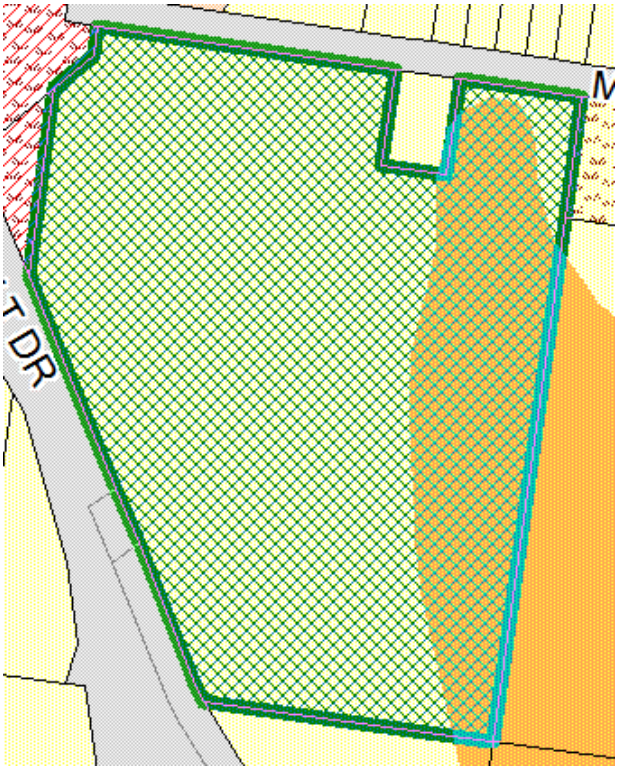
The development is will not directly the water course as all proposed works are more than 40m from the waterway and all lots have building envelopes on a higher elevation than the water course.

Clause 7.7 Sensitive Lands

The eastern portion of the subject land is identified as having sensitive lands, as the land may be subject to one or more of the following constraints:

> "*steep slopes, shallow soils, salinity, temporary or permanent inundation, high proportion of rock outcrop, high dispersibility and erosion potential or the presence of karst systems*".

The area mapped as having sensitive lands is shown on the map below:



The objective of this clause is to protect, maintain and improve the diversity and stability of landscapes including the restriction of—
(a) Development on land generally unsuitable for development due to steep slopes or shallow soils, and
(b) Development on land subject to salinity, and
(c) The removal of native vegetation, and
(d) Development on land that is subject to regular or permanent inundation, and
(e) Development on land that is within significant karst environments.

The inspection of the site has revealed that the mapped area is not steep, is not subject to inundation and there are no rock outcrops. The land is not subject to high erosion potential, salinity or impeded drainage.

The development is designed, sited and will be managed to avoid significant adverse environmental impact.

Clause 7.10 Essential Services
The development will provide reticulated water, sewer, underground electricity, sewerage management/disposal, stormwater drainage and suitable vehicular access through the design and via conditions of consent, if approved. The development will have all essential services as required.

The land is deemed suitable for the proposal and is considered to comply with Council's LEP 2014.

5.3.2 Any draft environmental planning instrument that is or has been placed on public exhibition and details of which have been notified to the consent authority

Nil.

5.3.3 Any Development Control Plan

Nil.

5.3.4 Any planning agreement that has been entered into under Section 7.4, or any draft planning agreement that a developer has offered to enter into under Section 7.4?

A Voluntary Planning Agreement (VPA) has been negotiated with the developer as per Section 7.4 Planning Agreements of the *Environmental Planning & Assessment Act 1979* in relation to this proposal.

See previous commentary under **Policy 7.10** above.

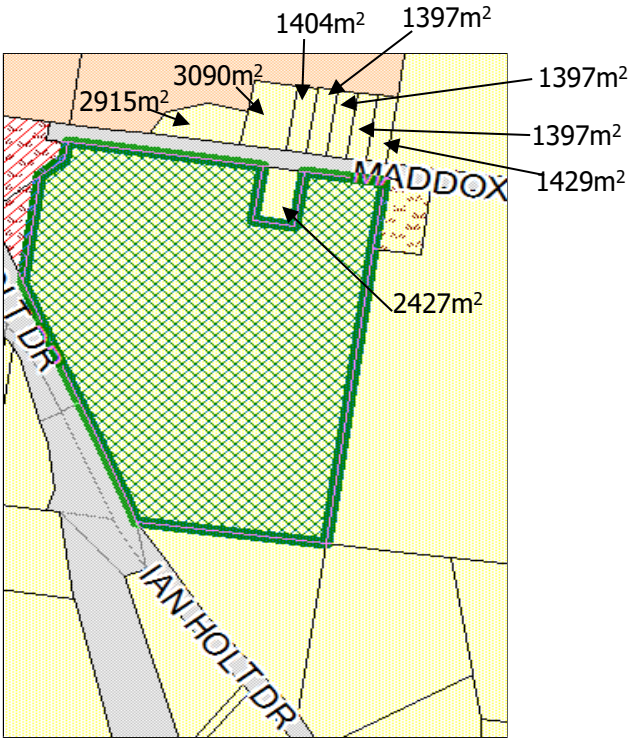
5.3.5 Any matters prescribed by the regulations that apply to the land

Nil

5.3.6 The likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality

Adjoining Landuses
Land uses in the locality are predominantly rural residential in nature. The proposed subdivision and subsequent residential uses will be consistent with the established uses in the locality. No unreasonable land use conflicts are expected from the subsequent residential development of the land.

The development would maintain an urban form that is rural residential in character, with the allotment sizes being over 2000m2. This is similar to surrounding areas along Maddox Lane that range between 1397m2 and 3090m2. The surrounding property sizes are shown on the map below:



Services
Subdivision works will include the extension of reticulated water and sewer services to each lot with Lot 1 to remain on a septic system in the interim due to the larger area size and lower elevation. Conceptual drawings were included with the application and referred to Council's Water and Sewer Officer for comment. These comments are found later in this report.

Electricity and telephone services are located within Ian Holt Drive and Maddox Lane and can be extended to service the subdivision.

Context and Setting
The subdivision is located within an established rural residential area. Existing residential development is located along Maddox Lane and larger residential lots are located along Ian Holt Drive. The size of the proposed allotments is similar in size to existing rural residential lots in the vicinity and the development will comprise an appropriate extension to the urban area of the Lidsdale village.

Access
Two new roads are proposed off Ian Holt Drive to service the majority of the allotments. Other lots will be accessed from Maddox Lane which will be upgraded. The new roads will be constructed to Council's Engineering requirements.

The Statement of Environmental Effects states that when the subdivision is fully constructed there will be approximately 198 new vehicle movements per day (6 vehicle movements per day per lot), with 30 of these movements via Maddox Lane.

The access to the proposed subdivision is within the vicinity of the Castlereagh Highway with direct access from Ian Holt Drive. For this reason, the application was referred to Transport for NSW for comment, although there is no legislative requirement for such referral. Their comments are provided later in this report.

It is expected that many vehicles attending the subdivision would have the choice of entering Ian Holt Drive from the North Western end where there are no other properties to access the Highway or from the Southern end of Ian Holt Drive where there are numerous residential dwellings and small businesses. Given the access options available in the road network, Iain Holt Drive is expected to have the capacity to service the additional traffic movements.

Traffic and access is therefore considered suitable for the development. Council's Engineering comments and conditions are found later in this report.

Social and Economic Impacts
The proposal is generally in keeping with the provisions of the LEP and is reasonably compatible with other similar development in the locality, it is expected a generally positive social and economic impact will result.

Water
The subdivision has been designed and will be managed to avoid any significant adverse impact on water. The application was referred to WaterNSW who have provided appropriate conditions of consent to protect water quality.

Noise and Vibration
There are no nearby sources of noise or vibration that would impact detrimentally the future residential use of the land. Subdivision works will be appropriately regulated to minimise and avoid nuisance noise generation and vibration on surrounding areas.

5.3.7 The Suitability of the site for the development

The surrounding land uses are primarily residential in nature with the lot size proposed consistent with those in the surrounding area. The development will have no direct impact on the amenity of the surrounding area. The proposed development complies with the objectives of the zone and the site is considered to be suitable for the site.

5.3.8 Any submissions made in accordance with this Act or the Regulations

The proposal was referred to Crown Lands, Rural Fire Service, Endeavour Energy, WaterNSW, Natural Resources Access Regulator, Transport for NSW, Council's Water & Wastewater Officer and Engineers for review and comment with recommendations detailed below.

DEPARTMENT OF PLANNING, INDUSTRY AND ENVIRONMENT - CROWN LANDS
Department of Planning, Industry and Environment - Crown Lands has reviewed the application (as an adjoining land owner) and offers no objections to the proposed development as no impact to Crown Land has been identified. However, some conditions have been recommended relating to avoiding impacts on adjoining Crown Land. These conditions have been included in Schedule A.

WATER NSW
The application was referred to Water NSW who has assessed the proposal and advised that the proposed development can achieve a neutral or beneficial effect on water quality provided that appropriate conditions are included in any development consent.

Conditions recommended by Water NSW have been included in Schedule A.

RURAL FIRE SERVICE
The original application was referred to the Rural Fire Service for the issue of a Bushfire Safety Authority in accordance with statutory requirements. The amended design has been referred to the RFS for an updated Bushfire Safety Authority with response pending. It is expected the revised Bushfire Safety Authority will be consistent with the previously issued approval.

ENDEAVOUR ENERGY
No response was received from Endeavour Energy therefore standard conditions apply and are detailed as Advisory Notes in Schedule A.

NATURAL RESOURCES ACCESS REGULATOR
The application was referred to the Natural Resources Access Regulator as the amended plans identified roadworks within 40m of Coxs River (waterfront land). However, the applicant has agreed to relocate the proposed cul-de-sac head to the east to avoid the removal of two trees resulting in the works no longer being on waterfront land. The Natural Resources Access Regulator has therefore advised that a Controlled Activity Approval is not required.

TRANSPORT FOR NSW
The application was referred to Transport for NSW (TfNSW) for advice as there is no legislative referral requirement. TfNSW provided the following advice.

> *TfNSW notes that pursuant to the Environmental Planning and Assessment Act 1979, there are not any legislative referral triggers for Council to refer DA196/18 to TfNSW. However, it is understood that Council is seeking TfNSW advice as the proposal will have an impact of additional traffic at the intersection of Castlereagh Highway and Ian Holt Drive. In this context, the following comments are made for consideration in Council's assessment of DA196/18:*
>
> - *A review of traffic generation associated with the proposed subdivision and existing peak hour traffic along the Castlereagh Highway (HW18) indicates that the existing design of the intersection of the Castlereagh Highway and Ian Holt Drive does not comply with the design required by Figure 3.25 of Austroads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management.*
> - *In order to comply with Figure 3.25 of Austroads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management, the intersection of the Castlereagh Highway and Ian Holt Drive should be upgraded to provide a Channelised Right (CHR) and Auxiliary Left (AUL) turn treatments.*
>
> *Please note that should Council as the consent authority agree that the intersection is required to be upgraded, a concept plan of the proposed intersection upgrade will need to be provided to TfNSW for concurrence pursuant to section 138(2) of the Roads Act 1993, prior to any consent being granted for this proposal.*

Council's Engineering Officer does not agree that the intersection of Ian Holt Drive and the Castlereagh Highway requires upgrading. Comments from Council's Engineering Officer are provided below.

COUNCIL'S INFRASTRUCTURE SERVICES DEPARTMENT
Council's Engineering Officer has reviewed the proposal and considered the advice from Transport for NSW. The intersection upgrade works suggested by Transport for NSW are not supported as the upgrade from the existing Auxiliary Right Turn to a Channelised Right Turn is only a minor improvement from a safety point of view and that an Auxiliary Left Turn already exists.

Infrastructure Department have no objection to the application subject to conditions.

COUNCIL'S WATER & WASTEWATER OFFICER
Council's Water and Wastewater Officer has reviewed the application and has no objections to the proposal subject to conditions and general design requirements in relation to the servicing requirements for water and sewerage infrastructure for the subdivision.

The general design requirements are attached to the consent as well as conditions placed within Schedule A.

PUBLIC SUBMISSIONS
Six submissions received from the public to the first and second notification periods were addressed in the report to the Ordinary Meeting of Council held on 25 November 2019 (Report Number 10.1.13.ECDEV).

In response to the most recent notification period, five public submissions have been received. The issues raised in the public submissions are outlined and addressed below.

Issue 1 – Loss of rural outlook, quiet amenity and privacy, development of "suburbia"

Comment: The subject land is zoned R5 Large Lot Residential and has a minimum allowable lot size of 2000m² under the LEP provisions. The proposed subdivision complies with the minimum lot size requirement and will facilitate low density residential development consistent with the objectives of the R5 zone. The visual outcome from the proposed development will be consistent with similar large lot residential development in the Lidsdale area, including the established adjoining residential properties on Maddox Lane and Ian Holt Drive. In relation to privacy, future dwellings on the proposed lots will be assessed having regard to the potential overlooking of surrounding properties.

Issue 2 – Oppose urban development in Lidsdale

Comment: As stated above, the subject land is zoned for Large Lot Residential subdivision with a minimum lot size of 2000m². The proposed development complies with the minimum lot size requirement. The scale of the development is consistent with similar large lot residential development in the Lidsdale area and will comprise semi-rural, very low density urban development.

Issue 3 – Impact on business operations on adjoining properties, trespassing by future residents, roaming dogs

Note: It is understood that this issue relates to the following potential future impacts:

- noise complaints from future residents of the proposed lots impacting on an adjoining business, and
- future residents and pets trespassing on adjoining land causing distress to cattle.

Comment: In relation to the potential noise complaints, future purchasers of the proposed lots will need to undertake due diligence with regard to awareness of activities on surrounding land. Notwithstanding, complaints regarding excessive noise are regulated by the NSW *Protection of the Environment Operations Act 1997*. In relation to the concern regarding potential trespass by future residents, this is a social behaviour matter and not a particular consideration in the assessment of a development application. Control of domestic dogs is also a separate regulatory matter and not a particular consideration in the assessment of a development application. Given the proposed subdivision is consistent with the zoning of the land and complies with relevant development standards, it is considered an appropriate development of the land.

Issue 4 – Potential contamination of soil and water by former adjoining uses

Comment: An assessment of the potential for contamination of the land has been carried out in accordance with statutory requirements and is addressed in this assessment report. Adequate remediation works have been undertaken and the proposed subdivision for residential purposes is considered an acceptable use of the site.

Issue 5 – Impact on access to adjoining property

Comments: The proposed subdivision will not compromise existing property access and no authorisation will be provided in any approval to alter or restrict existing access. A condition of development consent is recommended to ensure existing access points to adjoining properties are not impacted by the proposed development.

Issue 6 – Impact from potential flooding of Cox's River

Note: Submissions that raised this issue noted that the lower end of Maddox Lane and the existing sewer pump station have previously been affected by floodwaters. The submissions raised concerns specifically about flooding of the proposed cul-de-sac head on Maddox Lane and proposed Lot 2.

Comment: It is not uncommon for sewer pump stations to be located in low-lying areas as the sewerage system operates by gravity to the lowest point. Proposed lot 2 is located above the sewer pump station and above the level of some existing dwellings in the vicinity. There will be adequate room on proposed lot 2 for a dwelling to be erected in a position that will not be affected by flooding. In relation to the proposed cul-de-sac head of Maddox Lane, detailed design work will need to be undertaken to demonstrate that the roadworks will comply with Council's Engineering Design requirements.

Issue 7 – Impact on safety from increased traffic in Maddox Lane and what upgrades to Maddox Lane will be undertaken

Comment: The proposal results in an additional five lots with access from Maddox Lane. The applicant has agreed to undertake improvements to Maddox Lane along the property frontage and make a monetary contribution towards improvements on Maddox Lane between the subject land and Wolgan Road. The roadworks proposed include sealing of the road pavement, construction of a cul-de-sac head and upgrade of the table drain. Kerb and guttering and concrete footpaths are not proposed. The works will be required to be completed prior to the issue of a Subdivision Certificate.

Given the relatively small increase in traffic and the proposed improvements, the proposal is considered satisfactory with regard to safety and traffic issues.

Issue 8 – Access to Maddox Lane

Note: The submission noted that the previous plans considered by Council were based on no access from Maddox Lane and asks why have the plans been changed to include lots with access from Maddox Lane.

Comment: An applicant is able to make as many amendments to a development application before it is determined as they see fit. A wide range of issues were raised with the applicant following consideration of the previous plans, including issues raised in public submissions. The applicant reviewed the proposal having regard to all of the issues raised and presented Council with amended plans for further consideration. The amended plans includes five new lots with direct access to Maddox Lane and these amended plans have been notified to surrounding land owners for their further input.

Residential properties having a primary frontage to Maddox Lane are considered more desirable from an urban amenity and rural residential character perspective than having rear boundaries along the lane. In the context of the site, this is considered particularly relevant given the existing character of the locality resulting from the existing cottages and the existing residential property on the southern side of the lane.

Issue 9 – Lack of community recreation space, emergency access and nature strip

Note: The submission notes that some of the previous recommendations or suggestions have not been included in the amended plans.

Comment: An applicant is not obliged to include all recommendations or suggestions for changes to their proposal before the application is determined. The applicant did give consideration to all matters raised and presented an amended plan to Council for further consideration. For the reasons outlined in this report, the proposed subdivision layout is considered appropriate in the circumstances.

5.3.9 The public interest

The public interest is best served by the orderly and economic use of land for permissible uses and that does not impact unreasonably on the use and development of surrounding land.

The proposed subdivision is in the public interest as it provides additional housing opportunities in a rural setting, in compliance with the relevant development standards and provides sufficient curtilage to protect the heritage item on the property from the impacts of the development.

6. DISCUSSION AND CONCLUSIONS

The proposal is considered to generally comply with the relevant provisions of the applicable Environmental Planning Instruments. The proposal is not considered likely to have any significant negative impacts upon the environment or upon the amenity of the locality. As such it is recommended that development consent is issued subject to the conditions outlined below.

7. ATTACHMENTS

Schedule A- Conditions of consent.

8. RECOMMENDATION

THAT development application DA196/18 is approved subject to conditions set out in Schedule A.

Report prepared by: Lachlan Sims, 8/2/2021

REASONS FOR CONDITIONS
The conditions in Schedule A have been imposed for the following reasons:

- To ensure compliance with the terms of the relevant Planning Instruments
- To ensure no injury is caused to the existing and likely future amenity of the neighbourhood
- Due to the circumstances of the case and the public interest.
- To ensure that adequate road and drainage works are provided.
- To ensure that satisfactory arrangements are made to satisfy the increased demand for public recreation facilities
- To ensure access, parking and loading arrangements will be made to satisfy the demands created by the development.
- To ensure the structural integrity of the development.
- To protect the environment.
- To prevent, minimise, and/or offset adverse environmental impacts.
- To ensure lots are adequately serviced.
- To ensure there is no unacceptable impact on the water quality.
- To ensure compliance with the requirements of the Rural Fire Services.
- To ensure adequate soil conservation and protect against movement of soil and sediments.

Schedule A

Conditions of Consent (Consent Authority) and General Terms of Approval (NSW Rural Fire Service)

ADMINISTRATIVE CONDITIONS

1. **Approved development**

The development is to be carried out in accordance with the application, Statement of Environmental Effects, accompanying information and plans listed below and any further information provided during the process unless otherwise amended by the following conditions.

The plans and documents approved as part of this application include:

Description	Date	Prepared By
Statement of Environmental Effects	25/11/2020	Anthony Daintith Town Planning
Plans of Subdivision (Reference 2018-081DA, Sheets 1 – 3)	20/11/2020	Anthony Daintith Town Planning
Conceptual Stormwater Management Plan (Reference 2018.1010, Revision P5)	07/12/2020	Calare Civil

2. **Approved staging**

The development shall be undertaken in 4 stages, that being:

- Stage 1 – creation of Lot 1,
- Stage 2 – creation of Lots 2 to 6 fronting Maddox Lane,
- Stage 3 – creation of Lots 7 to 19 and construction of new road 2 and part of new road 1, and
- Stage 4 – creation of Lots 20 to 34 and construction of remaining new road 1.

Rural Fire Service Conditions (Bushfire Safety Authority)

3. FINAL CONDITIONS PENDING

Water NSW Conditions

4. **General**

The works, lot layout and staging of the subdivision shall be as specified in the Statement of Environmental Effects (Version 5.0, dated 25/11/2020) and shown on the proposed Subdivision Plan and Staging Plan (Ref No. 2018-081DA, Figure 2, dated 20.11.2020) all prepared by Anthony Daintith Town Planning. No revisions to works or lot layout or staging of the subdivision that will have any impacts on water quality, shall be permitted without the agreement of Water NSW.

5. **Subdivision Roads**

The subdivision roads, as relevant to each stage of the subdivision, shall:

- be sealed and otherwise constructed in accordance with Council's engineering standards, and
- collect road runoff via a series of pits and pipes and direct to various water quality treatment measures.

6. All stormwater structures and drainage works associated with the proposed subdivision roads shall be wholly included in the road or drainage reserve or within suitably defined easements.

7. **Stormwater Management**

   All stormwater management measures, as relevant to each stage of the subdivision, specified in the Conceptual Stormwater Management Plan (Revision P5, dated 07/12/20) and shown on the Preliminary Treatment Train and Catchment Plan (Job No. 2018.1010-P01, Dwg No P01, Issue P5, dated 01/12/20) prepared by Calare Civil Pty Ltd shall be incorporated in the final stormwater management plan. The final stormwater management plan shall be prepared in consultation with Water NSW and approved by Council prior to the issuance of Subdivision Works Certificates for Stages 3 and 4, as relevant. The Plan shall clearly specify the staging of the proposed stormwater management measures, particularly swales between Subdivision Roads 1 and 2, and downstream of Road 2.

8. Stormwater treatment measures, as relevant to each stage of the subdivision, shall be designed, located and constructed as per the approved final stormwater management plan.

9. No changes to stormwater treatment and management that will impact on water quality, shall be permitted without the agreement of Water NSW.

10. A suitably qualified stormwater consultant or engineer shall certify in writing to Water NSW and Council prior to the issuance of a Subdivision Certificate for that stage of the subdivision that all stormwater management structures have been installed as per these conditions of consent and are in a functional state.

11. There shall be a public positive covenant under Section 88E of the Conveyancing Act 1919, the prescribed authority being Water NSW, placed over proposed Lots 1, 9 to 11, and 30, 31 requiring that the swale drains:
    - be managed and maintained, and
    - be retained and protected from any development that takes place within one metre of the structure.

12. **Construction Activities**

    A Soil and Water Management Plan shall be prepared for all works, for each stage of the subdivision, required for the proposed development by a person with knowledge and experience in the preparation of such plans. The Plan for each stage shall:
    - meet the requirements outlined in Chapter 2 of NSW Landcom's Soils and Construction: Managing Urban Stormwater (2004)
    - be prepared prior to issuance of a Subdivision Works Certificate for that stage of the subdivision and shall be to the satisfaction of Council, and
    - include controls to prevent sediment or polluted water leaving the construction site or entering any natural drainage lines or stormwater drain.

13. The Soil and Water Management Plan for each stage of the subdivision shall be implemented, and effective erosion and sediment controls shall be installed prior to any construction activity for each stage. The controls shall be regularly inspected and maintained until works have been completed and groundcover established.

Conditions ensuring no impact to Crown Lands

14. No development drainage, overflow or contaminated waste (contaminated runoff or septic) shall impact negatively on the Crown land or waterway.

15. No materials are permitted to be dumped or stored on Crown land, roads, or waterways.

16. The development is conducted with minimal environmental disturbance to the Crown land and is to avoid the removal or damage of any native trees located within the subject Crown lands or waterways.

17. Public access on the Crown land and waterway is retained and not restricted on and along the Crown land and waterways.

18. Appropriate pollution control measures shall be provided for the duration of the works. Such measures are not to be located on Crown land or waterways.

19. Measures should be taken by the applicant to ensure that the work does not contribute to the spread of noxious weeds.

CONDITIONS APPLYING PRIOR TO ISSUE OF SUBDIVISION WORKS CERTIFICATE

20. **Maddox Lane**

The cul-de-sac head at the western end of Maddox Lane shall be relocated to the east by at least 8m to ensure works are more than 40m from the Coxs River and to avoid impacts on the two native trees in the vicinity of the roadworks.

21. **Engineering Requirements**

(1) All subdivision works must be designed in accordance with the development consent, Council's "Guidelines for Civil Engineering Design and Construction for Development", Austroads Guidelines and best engineering practice.

(2) Engineering plans shall be generally consistent with the stamped approved concept plans prepared by Anthony Daintith Town Planning as referenced in this consent.

(3) All engineering works are to be designed to the standard specified in Council's "Guidelines for Civil Engineering Design and Construction for Development". This document is available on Council's website or upon request from Council's administration desk.

22. Prior to the issue of a Subdivision Works Certificate for Stage 2, the Certifying Authority shall ensure that full length of Maddox Lane fronting the site (from the eastern boundary to the cul-de-sac head and including the frontage of Lot 1 DP 574754) is upgraded to a minimum 6 m wide bitumen sealed road with necessary table drain on both sides. The engineering design shall include design and construction details showing the extent of proposed road upgrade works and future upgrade works on full length of Maddox Lane. A minimum 10m radius turning head shall be provided at end of Maddox Lane.

23. Prior to the issue of a Subdivision Works Certificate for Stage 2, the Certifying Authority shall ensure that stormwater drainage pipelines in the easements within created Lots in Stage 2 in favour of Lots in future stages shall be provided. The corresponding calculations for pipeline capacity shall be provided for an assessment.

24. Prior to the issue of a Subdivision Works Certificate for Stage 3, the Certifying Authority shall ensure that stormwater drainage pipelines in the easements within created Lots in Stage 3 in favour of Lots in Stage 4 shall be provided. The corresponding calculations for pipeline capacity shall be provided for an assessment.

25. Prior to the issue of a Subdivision Works Certificate for Stage 3, the Certifying Authority shall ensure that a temporary turning area for waste collection vehicle shall be provided at end of the 11m wide section of road 1 (adjacent to Lot 20).

26. Prior to the issue of a Subdivision Works Certificate for each stage of the development, the Certifying Authority shall ensure that the proposed road have been designed in accordance with Lithgow City Council's Guidelines for Civil Engineering Design and Construction for Developments. ESA shall be 1×10^5 for proposed all roads, including Maddox Lane.

    A copy of the pavement design prepared and certified by a suitably qualified geotechnical engineer must accompany the Subdivision Works Certificate application.

27. Street signs are required at all road junctions. Signs shall be purchased from Council. The location of proposed street signs is to be shown on the Engineering Drawings submitted with the Subdivision Works Certificate application.

28. Traffic signs, traffic signals, pavement markings, guide posts, delineators, safety barriers and the like, whether permanent or temporary, are to be designed and installed at all roads in accordance with guidelines contained within the Austroads publication, "Guide to Traffic Engineering Practice – Part 8: Traffic Control Devices", Australian Standard 1742 – Manual of Uniform Traffic Control Devices and the Roads and Traffic Authority "Road Design Guide". All traffic control devices and signage are to be detailed in the engineering drawings submitted with the Subdivision Works Certificate. The consent of Lithgow City Council's Executive Manager of Operations or appointed officer will be required prior to the installation of any traffic control devices on existing roads.

29. The applicant shall submit a soil erosion and sedimentation control plan with the engineering design for Council approval. Such shall address both short and long term management of all disturbed areas and specified methods and structures to be employed to minimise any impact.

30. Stormwater Drainage plans shall submitted to Council as part of the Subdivision Works Certificate, drawn at a scale sufficient to show all necessary details, nominally 1:200, 1:500, 1:1000 or 1:2000. The following data is to be included with a contoured catchment area plan:

    i. Catchment areas and sub-areas, watershed (catchment boundary), overland flow paths, existing and proposed pipe layout. For large catchments, the total catchment area should be shown at a large scale on a separate plan or inset.

    ii. All sub-areas, drainage lines and pits are to be logically numbered.

    iii. A schedule of pipe details, including pipe number, size, class, bedding type, joint type, invert levels at inlet and outlet, slope, and length.

    iv. A schedule of pit details, including pit number, type, road chainage, surface level to the Australian Height Datum (AHD), invert level to AHD, depth, and lintel length.

    v. North point and legend.

    vi. Setout information.

    vii. Accurate position and level of all services and utilities which cross underground drainage pipelines.

    viii. Identify those building allotments adjacent to channels and major storm flow paths which may be liable to flooding in major flood events, and the minimum design habitable floor level adjacent to prevent flooding in the design flood event.

    ix. Inlet and outlet treatments.

    x. Measures for the prevention of erosion and sedimentation.

31. **Water and Sewer Requirements**

    S68 Approval shall be required for all Water and Sewer works prior to release of the Subdivision Works Certificate. If the development is staged then each stage will require a separate Section 68 Approval for construction.

32. S68 fees for both water and sewer construction for each stage are to be submitted with the Subdivision Works Certificate and prior to any works commencing.

33. The applicant shall provide a full Water and Sewer Design Plan for approval prior to the release of the Subdivision Works Certificate. Design to include, longitudinal sections for each main, minimum depth and cover, maximum depth, grade, chainage, inverts, size, depths, manholes, manhole numbers, manhole depths, pipe velocity, proposed material and positions of junctions and dead ends for all Lots.

34. Bio retention basins are not to impede sewer infrastructure assets

35. Maximum Grade of 20% is permitted for gravity sewer design purposes. The applicant is to provide details of addressing hydraulic jump, odour suppression and the use of energy dissipaters and sewer vents.

36. The maximum allowable sewer flow velocity shall be 3.0 m/s.

37. The applicant to gain full approval for any easements required for water and sewer works prior to release of Subdivision Works Certificate.

38. Sewer mains located within lots adjacent to stormwater drainage lines shall be a minimum of 750 mm clear of the stormwater pipe.

39. Plans showing all easements to be created over water and sewer infrastructure shall be submitted to Council prior to the release of the Subdivision Works Certificate.

40. All Water and Sewer works, including minimum and maximum flows and velocities, shall be designed in accordance WSAA code and requirements of Council's Guidelines and Policies.

41. Manholes that have been elevated for flood zone requirements shall require work platforms for WHS purposes.

42. Full vehicular access shall be provided to all sewer man holes to allow for servicing and maintenance.

43. The applicant shall provide detailed water design details to include a ring main design. The new water supply network shall connect into the Council reticulation network via two points of connection, being Ian Holt Drive & Maddox Lane (Stg 2).

44. The design of water reticulation shall generally be in accordance with the latest version of the Water Services Association of Australia (WSAA) "Water Supply Code of Australia" (WSA 03).

45. The applicant shall provide fire flow analysis for all water supply networks prior to the release of the Construction Certificate, to ensure that the network is capable of providing the performance for the design of pressure for spring hydrants. Maximum spacing of hydrants shall be 60metres.

46. Subdivision Works Certificate design drawings and specifications shall clearly address the following:
    a. Location of pipelines, valves, hydrants, pipe materials, size, pressure class, jointing methods and corrosion protection measures.
    b. Specifications for products, materials, site investigation, excavation / trench details and other technical matters.
    c. Documentation of design assumptions, constraints and issues relevant to the design and not otherwise noted in the Concept Plan.

47. Water supply design to provide Desirable Minimum Static Pressure of 350kpa. Static Pressure shall not to exceed 500kpa at each house hold boundary.

48. Stop (dividing and isolating) and control valves shall be positioned to give required control of the system and to provide an alternative means of supply when a distribution main is taken out of service.

49. Minimum and maximum allowable service pressures will not be exceeded in each zone.

50. Minimum and maximum flows and velocities shall be in accordance with the WSAA Code.

51. A geotechnical report shall be submitted to Council prior to the release of the Subdivision Works Certificate. All Pipe and fitting materials must be suitable for application and environment.

52. The spacing and positioning of valves shall allow for isolation of individual zones.

53. Water mains shall only be installed in undisturbed ground or compacted ground that is approved by a certified engineer.

54. All stop valves shall be anticlockwise closing and be positioned at a minimum of every 300 metres. Valves shall be positioned adjacent to branch take offs.

55. Each lot shall have an individual water meter, which shall be purchased from Council at the applicants full cost and held at Council store.

56. Right angled 90 degree brass lockable meter ball valves to be used as meter control valves and a type approved by the Water and Wastewater Manager. Council will secure the water meter valve with a stainless steel locking device prior to the subdivision certificate being released.

57. Smart water meters are to be purchased by the owner after submitting to Council a Water Service Connection n Application. Council will install the meter when a Development Application has been approved for the new allotment and a S68 Approval granted for connection to draw water. The installation of the water meter by Council plumbers or preferred contractor will be in accordance with Council's Management Plan and current fees and charges.

CONDITIONS APPLYING PRIOR TO COMMENCEMENT OF CIVIL WORKS

58. **Subdivision Works Certificate**

A Subdivision Works Certificate must be obtained from Lithgow City Council prior to the commencement of any civil construction works each stage of the subdivision.

All subdivision works have been designed in accordance with the development consent, Council's "Guidelines for Civil Engineering Design and Construction for Development", Austroads Guidelines and best engineering practice.

Engineering plans shall be generally consistent with the stamped approved concept plans prepared by Anthony Daintith Town Planning, reference number 2018.081DA, dated 20 November 2020. Engineering plans shall be prepared and provided for proposed all stages for a comprehensive assessment.

All retaining walls shall be clearly indicted on the engineering plans. Structural Design Certificates certified by a qualified structural engineer shall be provided for any retaining wall more than 1m in height.

Engineering plans and supporting calculations for the stormwater management systems are to be prepared by a suitably qualified person and shall accompany the application for a Subdivision Works Certificate.

The subdivision works may include but are not limited to the following:

- Public and private roads
- Stormwater management (quality)

- Private access driveways
- Sediment and erosion control measures
- Overland flow paths
- Traffic facilities
- Earthworks
- Culverts, retaining walls and other structures
- Landscaping and embellishment works

The Subdivision Works Certificate must be supported by engineering plans, calculations, specifications and any certification relied upon.

59. **Site Access**

Prior to the commencement of any works on the land, a single vehicle/plant entry/access to the site shall be provided to authorize ground disturbance and prevent the transportation of soil onto any public place. Single sized 40mm or larger aggregate placed 150mm deep, and extending from the street, kerb/road to the site is to be provided as a minimum requirement.

60. **Site Signage**

Prior to the commencement of any works on the land, a sign/s must be erected in a prominent position on the site:

(a) showing the name of the principal contractor (if any) for any building work and a telephone number on which that person can be contacted outside working hours.

(b) stating that authorized entry to the work site is prohibited and

(c) showing the name, address and telephone number of the principal certifying authority for the work.

The sign/s are to be maintained while the building work, subdivision work or demolition work is being carried out, but must be removed when the work has been completed.

61. **Protection of adjoining areas**

A temporary hoarding or temporary construction site fence must be erected between the work site and adjoining lands before the works begin, and must be kept in place until after the completion of works, if the works—

(a) could cause a danger, obstruction or inconvenience to pedestrian or vehicular traffic, or

(b) could cause damage to adjoining lands by falling objects, or

(c) involve the enclosure of a public place or part of a public place.

62. **Toilet facilities**

(1) Toilet facilities must be available or provided at the work site before works begin, and must be maintained until the works are completed, at a ratio of one toilet plus one additional toilet for every 20 persons employed at the site.

(2) Each toilet must—

(a) be a standard flushing toilet connected to a public sewer, or

(b) have an on-site effluent disposal system approved under the Local Government Act 1993, or

(c) be a temporary chemical closet approved under the Local Government Act 1993.

63. **Waste management**

(1) A waste management plan for the work must be prepared before work commences on the site.

(2) The waste management plan must—

(a) identify all waste (including excavation, demolition and construction waste material) that will be generated by the work on the site, and

(b) identify the quantity of waste material, in tonnes and cubic metres, to be—

(i) reused on-site, and

(ii) recycled on-site and off-site, and

(iii) disposed of off-site, and

(c) if waste material is to be reused or recycled on-site—specify how the waste material will be reused or recycled on-site, and

(d) if waste material is to be disposed of or recycled off-site—specify the contractor who will be transporting the material and the waste facility or recycling outlet to which the material will be taken.

64. **Traffic Control Plan**

A fully certified traffic control plan and road works signage plan is to be submitted to Council prior to the commencement of any works where machinery may obstruct traffic on any public road while construction work is being undertaken. A traffic control plan and certification of fully qualified contractors/persons is to be submitted to Council prior to any work commencing on the shoulder of any public road. Failure to comply may result in Work Cover intervention and may also include Council stopping all work immediately until the developer complies with suitable traffic management procedures.

65. **Run-off and erosion controls**

Run-off and erosion controls must be implemented to prevent soil erosion, water pollution or the discharge of loose sediment on the surrounding land by—

(a) diverting uncontaminated run-off around cleared or disturbed areas, and

(b) erecting a silt fence and providing any other necessary sediment control measures that will prevent debris escaping into drainage systems, waterways or adjoining properties, and

(c) preventing the tracking of sediment by vehicles onto roads, and

(d) stockpiling top soil, excavated materials, construction and landscaping supplies and debris within the lot.

These controls are to be implemented in accordance with the approved Sedimentation and Erosion Control Plan.

CONDITIONS APPLYING DURING THE WORKS

Note. The Protection of the Environment Operations Act 1997 and the Protection of the Environment Operations (Noise Control) Regulation 2008 contain provisions relating to noise.

66. **Impacts on adjoining properties**

All works on Maddox Lane shall ensure that there is no impact on existing access to properties along the northern side of Maddox Lane.

67. **Standard hours for construction**

Construction may only be carried out between 7.00 am and 6.00 pm on Monday to Friday and between 8.00am and 1.00pm on Saturday. No construction is to be carried out at any time on a Sunday or a public holiday.

68. **Excavation works**

Excavation work is to be wholly confined within the property boundary. Excavation is to have minimal impact to the heritage items in the area.

69. **Construction Noise**

Construction noise shall be in accordance with the 'Noise Control Guidelines for Construction Noise Standards'.

70. **Compliance with plans**

(1) Works must be carried out in accordance with the plans and specifications to which the development consent relates.

(2) A copy of the stamped and approved plans, development consent are to be on the site at all times.

71. **Maintenance of site**

(1) All materials and equipment must be stored wholly within the work site unless an approval to store them elsewhere is held.

(2) Waste materials (including excavation, demolition and construction waste materials) must be managed on the site and then disposed of at a waste management facility.

(3) Any run-off and erosion control measures required must installed in accordance with the approved Sedimentation and Erosion Control Plan and be maintained within their operating capacity until the completion of the works to prevent debris escaping from the site into drainage systems, waterways, adjoining properties and roads.

(4) During construction—

(a) all vehicles entering or leaving the site must have their loads covered, and

(b) all vehicles, before leaving the site, must be cleaned of dirt, sand and other materials, to avoid tracking these materials onto public roads.

(5) Only those areas involved in the construction of the civil works shall be disturbed, with all other areas of the site to be maintained with existing vegetation cover.

(6) The developer shall ensure that during construction works, all measures are taken to eliminate/suppress any dust nuisance emanating from the site.

72. **Earthworks, retaining walls and structural support**

(1) Any earthworks (including any structural support or other related structure for the purposes of the development)—

(a) must not cause a danger to life or property or damage to any adjoining building or structure on the lot or to any building or structure on any adjoining lot, and

(b) must not redirect the flow of any surface or ground water or cause sediment to be transported onto an adjoining property, and

(c) that is fill brought to the site—must contain only virgin excavated natural material (VENM) as defined in Part 3 of Schedule 1 to the *Protection of the Environment Operations Act 1997*, and

(d) that is excavated soil to be removed from the site—must be disposed of in accordance with any requirements under the *Protection of the Environment Operations (Waste) Regulation 2005*.

(2) Any excavation must be carried out in accordance with Excavation Work: Code of Practice (ISBN 978-0-642-785442 [PDF] and ISBN 978-0-642-785459 [DOCX]), published in July 2012 by Safe Work Australia.

(3) All earthworks shall be undertaken in accordance with AS3798 and Lithgow City Council's Guidelines for Civil Engineering Design and Construction for Development".

73. **Archaeology discovered during excavation**

If any object having interest due to its age or association with the past is uncovered during the course of the work—

(a) all work must stop immediately in that area, and

(b) the Office of Environment and Heritage must be advised of the discovery.

Note. Depending on the significance of the object uncovered, an archaeological assessment and excavation permit under the Heritage Act 1997 may be required before further the work can continue.

74. **Aboriginal objects discovered during excavation**

If any Aboriginal object (including evidence of habitation or remains) is discovered during the course of the work—

(a) all excavation or disturbance of the area must stop immediately in that area, and

(b) the Office of Environment and Heritage must be advised of the discovery in accordance with section 89A of the *National Parks and Wildlife Act 1974*.

Note. If an Aboriginal object is discovered, an Aboriginal heritage impact permit may be required under the National Parks and Wildlife Act 1974.

75. **Contamination discovered during excavation**

An unexpected finds protocol should be developed and implemented if contaminants are suspected during development works.

76. **Completion of Works**

Upon completion of all works in the road reserve, all verge areas fronting and within the development are to be grass seeded or turfed from the back of shoulder to the property boundary with the exception of service lids or other infrastructure which is not to be turfed over.

77. **Pavement Testing**

Each layer of pavement shall be tested for compaction and deflection as detailed below. The Executive Manager of Operations or his delegate must approve each layer prior to the placing and compaction of subsequent layers.

(a) Compaction Testing:

The subgrade, and all pavement layers, shall be density tested in-situ at the start and finish of the work (within the first/last five metres), and thereafter at intervals of no more than 50 metres, or as indicated by Council's Development Engineer. A minimum of two tests will be required for road pavements less than 50 metres in length. At cul-de-sacs, additional testing will be required at the turning head. The test sites selected should be representative of the likely minimum pavement compaction levels achieved. Density testing must be undertaken by an 36uthorized representative of a laboratory registered by the National Association of Testing Authorities (NATA). Density testing may be conducted using either the sand replacement test, nuclear gauge, or other NATA approved method.

Where a nuclear gauge in direct transmission mode is used to determine pavement density, the test method shall comply with RTA Test Method T173. Results of density testing shall be forwarded directly to Council for approval. No pavement layer shall be covered by a subsequent layer until the results of the density testing have been delivered to and approved by Council's Development Engineer. The table below sets out the minimum compaction requirement for each pavement layer.

Layer	Compaction Requirement	Standard
Subgrade	98% standard maximum dry density California Bearing Ratio (CBR) test	AS 1289.E1.1 AS 1289.F1.1
Sub-Base	100% standard maximum dry density	AS 1289.E1.1
Base	100% standard maximum dry density • *Unbound Materials* • *Cemented Materials* Density in place test California Bearing Ratio (CBR) test	 AS 1289.E2.1 AS 1289.E3.1 AS 1289.E3.1 AS 1289.F1.1

Laboratory determination of maximum dry density for pavement materials which have been modified with cement must be undertaken within 4 hours of the cement being added to the material. Materials tested outside this time will be subject to an adjustment to correctly determine the maximum dry density of the sample. For either natural or modified material, the laboratory determination of maximum dry density shall be undertaken at a frequency of no less than one determination for each days production of material.

(b) Deflection Testing:

All pavement layers must be proof-rolled, and approved by Council's Development Engineer prior to the placement of subsequent pavement layers.

The proof-rolling will be conducted using either:

i. a roller having a load intensity of seven (7) tonnes per metre width of roller

ii. a tandem axle rigid vehicle, having a maximum load of 15 tonnes per axle group (8 tyres), 12 tonnes per axle group (6 tyres), or 10 tonnes per axle group (4 tyres). Single axle vehicles should have maximum loads of 8.5 tonnes (dual tyres), or 5.4 tonnes (single tyres).

Any movement of the pavement layer under loading will be deemed a failure.

Although not a subdivision requirement at this stage, Council strongly encourages Developers to specify in their contracts the use of Benkelman Beam tests to test for any deflection in the pavement layers, and as a means of quality assurance.

(c) Final Road Profile:

The mean construction tolerance on pavement surface crossfalls should be within ±5% of the design crossfall. The maximum allowable construction tolerance is ±5%, and the maximum standard deviation of crossfalls is 5%.The vertical alignment should not deviate by more than 25mm from the value shown on the drawings.

78. Complaints

The applicant is to comply with all reasonable requests from Council with regard to any complaints received during construction works.

79. Civil Work Inspections

All road, drainage, kerb and gutter, water and sewerage reticulation works associated with a development shall be inspected by Council's Operations Department. The whole of the works are to be carried out to the satisfaction of the Executive Manager of Operations. Council shall inspect engineering works at the following stages as a minimum:

- Following site regrading and shaping, and prior to installation of footway services;
- Installation of erosion and sedimentation control measures;
- Storm water drainage lines prior to backfill;
- Water and sewer lines prior to backfill;
- Testing of water and sewer lines;

- Subgrade preparation, before placing pavement;
- Establishment of line and level for kerb and gutter placement;
- Completion of each pavement layer ready for testing;
- Road pavement surfacing;
- Completion of works

The developer or contractor shall give Council a minimum 24 hours' notice when requesting an inspection to ensure that development works are not delayed. The developer shall, if required by a Council Engineer, submit delivery dockets for all materials used, and all material and performance test results obtained in the development.

80. **Works as Executed Plans**

Works as Executed (WAE) Plans detailing all services and infrastructure are to be prepared by a registered surveyor or professional engineer, and submitted to Council. The WAE plans shall be lodged prior to the release of the linen plan. The applicant is required to submit three complete sets of hard copy plans (one A1-sized, two A3-sized) and one set of electronic plans in AUTOCAD format.

A "Work-As-Executed" (WAE) plan is required to be forwarded to Council prior to the final inspection. The WAE is to include, as a minimum:

- certification that all works have been completed generally in accordance with the approved plans and specification,
- any departure from the approved plans,
- any additional/deleted work,
- the location of conduits, subsoil lines, stub mains and inter-allotment drainage lines,
- pipeline long sections showing the constructed invert levels of each pipe at each pit and pipe dimensions,
- details of overland flow provisions,
- site regrading areas by new contours, and
- all other details which have a bearing on the extent of works and their acceptance by Council
- The WAE drawings shall be accompanied by plans indicating the depth of cut / fill for the entire development site. The survey information is required to show surface levels and site contours at 0.5m intervals. All levels are to be shown to AHD.
- A copy of all documentation, reports and manuals, technical guidelines for handover of stormwater management facilities (bioretention basin/swell) to Lithgow City Council.
- A Geotechnical Report certifying that all earthworks and road formation have been completed in accordance with AS3798 and Lithgow City Council's Design Guidelines and Construction specifications. The report shall include:
    - Compaction reports for road pavement construction
    - Compaction reports for bulk earthworks and lot regarding.
    - Soil classification for all residential lots
    - Statement of Compliance
- Structural Engineer's construction certification of all structures, such as retain walls (>1m in height)
- Soil testing for each lot to be classified according to AS2870 "Residential Slabs and Footings".

PRIOR TO ISSUE OF SUBDIVISION CERTIFICATE

81. **Application Requirements**

An application for Subdivision Certificate for each stage is to be lodged with Council including payment of relevant fees, two copies of the registered surveyors plans of subdivision, any associated 88B instrument (if applicable) following the compliance with all conditions of this consent. The application for a Subdivision Certificate is to be submitted with a written statement detailing how all applicable consent conditions have been met.

82. **Addressing**

Street addressing is to be assigned for each lot and shall be shown on the final registered plan of subdivision for each stage. Addressing for each lot will be provided by Council and is to be obtained prior to the submission of an application for subdivision certificate.

83. **Maintenance Bond – Civil Works**

A maintenance bond of 5% of final construction costs is to be paid to Council upon final inspection and approval of all civil works and prior to the issue of a Subdivision Certificate. The value of the maintenance bond shall be approved by Council after witnessing a certified copy of the contract documentation showing all civil construction costs for the subdivision. The maintenance period will start from the date of final inspection for a period of 12 months. At the conclusion of the 12 month period a final inspection is to be undertaken by Council at the request of the developer to determine if any defects have arisen during this time. All deficiencies are to be rectified by the developer, should outstanding works remain Lithgow City Council reserves the right to expend bond monies on rectification works.

84. **Certificate of Compliance – *Water Management Act 2000***

A Certificate of Compliance issued by Lithgow City Council as the water authority under Section 305 of the Water Management Act 2000 is to be obtained prior to the issue of a Subdivision Certificate. This will require the payment in full of any water and sewer contributions applicable to release the Certificate of Compliance. The amount of contribution is calculated at the time of payment in accordance with Lithgow City Council's adopted fees and charges and the Development Servicing Plans for Water Supply and Sewerage 2018.

85. **Utility Services**

Utility service connections are to be provided and completed to each lot in accordance with the relevant telecommunications, electricity and gas authorities requirements prior to the issue of a Subdivision Certificate. Written confirmation from each utility authority that services have been completed and provided to each lot is to be submitted to Council prior to the issue of a Subdivision Certificate.

86. Prior to the issue of the Subdivision Certificate in connection with a development, the developer (whether or not a constitutional corporation) is to provide evidence satisfactory to the Certifying Authority that arrangements have been made for:

1. The installation of fibre-ready facilities to all individual lots and/or premises in a real estate development project so as to enable fibre to be readily connected to any premises that is being or may be constructed on those lots. Demonstrate that the carrier has confirmed in writing that they are satisfied that the fibre ready facilities are fit for purpose.

and

2. The provision of fixed-line telecommunications infrastructure in the fibre-ready facilities to all individual lots and/or premises in a real estate development project demonstrated through an agreement with a carrier.

Note: real estate development project has the meanings given in section 372Q of the Telecommunications Act.

87. **Voluntary Planning Agreement**

The Voluntary Planning Agreement (VPA) is to be endorsed by all parties as proposed by the developer of the land prior to the issue of the Subdivision Certificate for each stage. The contribution agreed to within the VPA is to be paid at a rate of $3,000.00 per lot for community facilities and public open space plus an additional $5,000 per lot for lots 2 to 6 to go towards roadworks on Maddox Lane between the subject land and Wolgan Road.

88. **Surveyor's Certificate**

Prior to issue of any Subdivision Certificate, a Surveyor's Certificate certifying that all pipes and services are located wholly within the property or within appropriate easements and that no services encroach boundaries, private or public lands.

89. **Easements**

(1) Prior to the issue of a Subdivision Certificate the following easements shall be created on the plan of subdivision:

- Easements for drainage
- Right of carriageway
- Any other easements identified during the construction process

Any change to easement width/location during the construction process.

(2) Prior to issue of Stage 3 Subdivision Certificate, any easement located within the road reserve (cul-de-sac at end of Road 2) must be removed.

90. **Road Naming**

Prior to the issue of a Subdivision Certificate for Stage 2, the applicant shall submit options for road names to Council for consideration and approval in accordance with the guidelines for the naming of roads (Geographical Names Board of NSW).

91. **Street Identification Signage**

At the developer's cost, aluminium street blade(s) signs minimum 150mm in width, with smooth white reflective background are to be provided where required. Reflective material is to comply with AS 1906. The street blades shall be printed with approved street name in black non-reflective writing 100mm high on both sides of blade in block type writing, as per Lettering Serious C and shall also have Council logo on the blade(s). A 75mm OD Galvanised iron post(s) and iron cap(s) with accompanying aluminium bracket(s) holes for fixture to galvanised iron post(s) and bolts shall also be supplied. Council can arrange for the manufacture and installation of above items, all works will be at the Developers cost. Street identification signage is to be finalised and installed to the satisfaction of Council prior to the issue of a Subdivision Certificate.

92. **Street Lighting**

A street lighting plan is to be provided with adequate street lighting in accordance with AS/NZS and be to the satisfaction of the relevant electricity supplier prior to release of the Subdivision Certificate for Stage 2. Such lighting shall have regard to its visual impact and be designed to complement the streetscape. Street lighting is to be implemented prior to the release of the Subdivision Certificate for each stage.

93. **Street Trees**

A street tree planting plan is to be submitted to Council and approved for the overall subdivision prior to Subdivision Certificate release of Stage 2. The street trees are to be implemented within each stage prior to Subdivision Certificate release of those stages respectively.

94. **Water and Sewer Requirements**

All conditions of any S68 approval for each Stage shall be met prior to the issue of any Subdivision Certificate, compliance with the terms of Approval must be completed to the satisfaction of Councils Water & Wastewater Director. Council's written approval must be obtained in this regard.

95. Stage 1 – 1 Lot plus residue Lot. Lot 1 is to connect to the existing sewer reticulation system and connect to the existing Sewer Pump Station No 964 located in Maddox Lane.

96. Any upgrades to the existing sewerage pump station to service this area will be in accordance with Councils Development Services Plan and headworks contributions.

97. Stage 2, lots 2 to 6, water and sewer connections to be constructed via Maddox Lane newly constructed reticulation services. Sewer pumping station to be relocated prior to the release of the Subdivision Certificate for Stage 2.

98. Stage 3 and 4 sewer connections to be completed prior to the release of the Subdivision Certificate for Stage 3. The continuation of the sewer main will be required to extend across Lot 17 to Lot 11 DP 800967 for future connections. The dead end line will terminate with a 150mm x 1m spigot pipe into the lot. These works also are to be completed prior to the release of the Subdivision Certificate for Stage 3.

99. Stage 2 water and sewer connections are to be completed prior to the release of the subdivision works certificate for Stage 3.

100. The existing water main that impedes Lot 2 shall be redirected off the allotment at the owner's expense and be undertaken prior to the release of the Subdivision Certificate for Stage 2.

101. **Environmental Protection**

Prior to the issue of the Subdivision Certificate, Council is to be provided with a report from Upper Macquarie County Council indicating:

- Noxious plants are under adequate management; or
- Noxious plant management has been undertaken and adequate control measures are in place; or
- Noxious plants are not a concern for the property.

ADVISORY NOTES

AN1 That any proposed clearing of native vegetation may require approval from the Catchment Management Authority-Local Land Services. Prior to the removal of any native vegetation it is suggested that you contact the Catchment management Authority for advice.

Threatened Species

AN2 No Threatened Species or Endangered Ecological Community listed under the Environmental Protection and Biodiversity Conservation Act 1999, the Biodiversity Conservation Act 2016 and the Biodiversity Conservation Regulation 2017 or the associated Regulations are to be cleared as result of this Approval. This includes for fencing or accessways.

Endeavour Energy Requirements

AN3 Network Capacity/Connection

In due course the applicant, for the future proposed development of the site will need to submit an application for connection of load via Endeavour Energy's Network Connections Branch to carry out the final load assessment and the method of supply will be determined. Depending on the outcome of the assessment, any required padmount substation will need to be located within the property (in a suitable and accessible location) and be protected (including any associated cabling) by an easement and associated restrictions benefiting and gifted to Endeavour Energy.

AN4 Bushfire

The network required to service the proposed development must be fit for purpose and meet the technical specifications, design, construction and commissioning standards based on Endeavour Energy's risk assessment associated with the implementation and use of the network connection/infrastructure for a bushfire prone site.

AN5 Earthing

The construction of any building or structure (including fencing, signage, flag poles etc.) that is connected to or in close proximity to Endeavour Energy's electrical network is required to comply with AS/NZS 3000:2007 'Electrical installations' to ensure that there is adequate connection to the earth. Inadequate connection to the earth places persons and the electricity network at risk.

AN6 Easement Management/Network Access

The following is a summary of the usual/main terms of Endeavour Energy's electrical easements requiring that the land owner:

- Not install or permit to be installed any services or structures within the easement site.
- Not alter the surface level of the easement site.
- Not do or permit to be done anything that restricts access to the easement site without the prior written permission of Endeavour Energy and in accordance with such conditions as Endeavour Energy may reasonably impose.

Endeavour Energy's preference is for no activities or encroachments to occur within its easement areas. If any proposed works or activities (other than those approved/ certified by Endeavour Energy's Network Connections Branch as part of an enquiry/ application for load) will encroach/affect Endeavour Energy's easements, contact must first be made with the Endeavour Energy's Easements Officer.

It is imperative that the access to the existing electrical infrastructure adjacent and on the site is maintained at all times. To ensure that supply electricity is available to the community, access to the electrical assets may be required at any time.

AN7 Vegetation Management

The planting of large trees in the vicinity of electricity infrastructure is not supported by Endeavour Energy. Suitable planting needs to be undertaken in proximity of electricity infrastructure. Only low growing shrubs not exceeding 3.0 metres in height, ground covers and smaller shrubs, with non-invasive root systems are the best plants to use. Larger trees should be planted well away from electricity infrastructure (at least the same distance from overhead power lines as their potential full grown height) and even with underground cables, be installed with a root barrier around the root ball of the plant.

AN8 Noise

Where development is proposed in the vicinity of electricity infrastructure, Endeavour Energy is not responsible for any acoustic/noise amelioration measures for such noise that may impact on the nearby proposed development.

AN9 Dial Before You Dig

Before commencing any underground activity the applicant is required to obtain advice from the ***Dial before You Dig*** **1100** service in accordance with the requirements of the *Electricity Supply Act 1995* (NSW) and associated Regulations. This should be obtained by the applicant not only to identify the location of any underground electrical and other utility infrastructure across the site, but also to identify them as a hazard and to properly assess the risk.

AN10 Public Safety

Workers involved in work near electricity infrastructure run the risk of receiving an electric shock and causing substantial damage to plant and equipment. Endeavour Energy's public safety training resources, which were developed to help general public/workers to understand why you may be at risk and what you can do to work safely is available via Endeavour Energy's website via the following link:

http://www.endeavourenergy.com.au/wps/wcm/connect/ee/nsw/nsw+homepage/communitynav/safety/safety+brochures

AN11 Emergency Contact

In case of an emergency relating to Endeavour Energy's electrical network, the applicant should note the Emergencies Telephone is 131 003 which can be contacted 24 hours/7 days.

General design requirements for water and sewer

Please find attached general design requirements in relation to the servicing requirements for water and sewerage as part of the Development Application based on Preliminary Concept Design drawing received by Council and dated 5/3/19.

The attached conditions do not constitute approval under *section 68, Local Government Act 1993*. Prior to the commencement of any works as described below;

- Undertaking of water supply works
- Undertaking of sewerage works
- Installation, alteration, disconnection or removal of a meter connected to a service pipe
- Connect a private drain or sewer with a public drain or sewer under the control of a council or with a drain or sewer which connects with such a public drain or sewer
- The developer must obtain written Section 68 approval from Council; this will be required prior to the issue of the Construction Certificate. The Section 68 application requires the submission of all detailed engineering drawings/design, specifications and any applicable supporting information for the proposed works.

If your Section 68 application is approved, Council will issue you with a Section 68 approval containing conditions that must be complied with during construction.

Please be advised of the following conditions:

Sewerage

1. General Design Considerations

A sewerage service is to be provided for each property; joint sewerage services are prohibited under the *Local Government (General) Regulation 2005, Part 6, Division 3, section 162*

1.1 Objectives

The sewerage objectives are seen as being achieved when:

i. The planning, design and construction of new facilities are adequate in servicing new and future developments.
ii. there is compatibility with the existing facilities, methods of operation, and maintenance techniques; and
iii. The facilities provide public health, environmental, and asset protection consistent with the accepted design and construction requirements set out in this document and with developments in technology as approved from time to time.

The pipe system may, on occasions, be subject to "surcharge" (where the hydraulic grade line is higher than the pipe obvert) or "overflows" (where sewage overflows out of maintenance holes). These situations may be the result of blockages and/or flows in excess of the design flows. In establishing the layout of the pipe network, designers should take care to ensure that any overflows are likely to cause only minimal nuisance or damage.

1.2 Maintenance Aspects

1.2.1 General
The sewerage system is to be designed with due regard to the continuing maintenance requirements after the works have been constructed. A system that can be easily and economically maintained is essential. Maintenance holes located in readily identifiable locations (e.g. opposite a building line), and not within leased properties, are an aid to rapid clearance of sewer blockages.

1.2.2 Special equipment
The purchase of special maintenance equipment and plant requires considerable lead times, special approvals and funding. As a consequence, no design incorporating the need for special or unusual equipment should be prepared without the prior written approval of Lithgow City Council.

1.3 Discharges from stormwater systems to sewers

Unless approved otherwise, under the specific *Trade Waste Agreement*, no stormwater discharge will be accepted into sewers.

2. Location of Sewers

2.1 Sewer Locations

2.1.1 Sewers located outside privately owned lands

The design of a sewer system should take into account the fact that there is a significant increase in the risk of tree root blockages after a period of about 20 years. Further, the access to sewers for maintenance is a major problem in the Lithgow despite the use of sewerage reserves for this purpose. Therefore minimising the use of sewer alignments and reserves in leased land is an important feature of good sewer design. Where there is public land at the rear or the side of privately owned block the sewer should be located within the public land rather than within the leased/privately owned block.

i. Diversion of principal carrier sewers around leased lands

Blockages in the sewer system have the potential to result in sewage overflows into leased properties. To minimise problems caused by blockages, wherever practicable, sewers, particularly main carriers, shall be located in public areas rather than within leases.

ii. Other situations

Where a sewer is to be constructed across open areas it is to be sited to;
(1) Maximise its use for future development, and
(2) Minimise its impact on possible future use of the site.

Wherever possible sewers under playing fields are to be sited so that maintenance holes are not located within the playing area.

2.1.2 Sewers located within leased lands

Where a sewer is to be constructed within privately owned properties a 3m wide easement is to be created in favour of Council, with the pipe(s) centrally located within the easement and in a location that minimises the impact on the future development potential of the leased/ privately owned land(s).

2. Hydraulic Design

2.1 General Hydraulic Aspects

All sewer works in connection with the application are to be of a size no less then 150mm to the service tie or buried vertical riser

i. Minimum grades for DN150 pipes

Minimum permissible grades of the uppermost reaches of sewers are to be no less than 1.00%

This is the absolute minimum grades that shall be used. In general, it is not considered good practice to use a minimum grade on a short intermediate section of sewer when the upstream and downstream sections are laid at steeper grades.

ii. Maximum grades for sewers

Restrictions are placed on the maximum grades of sewers to limit internal erosion of pipe material, and/or pipe movement (due to trench flows causing loss of bedding).

The maximum pipe grade for sewers larger than DN150 is 15%. Where grades steeper than 15% are planned the circumstances are to be referred to Lithgow City Council for assessment.

To limit the scouring effect arising from water flow within the pipe bedding material, and also to anchor the pipe, special bedding, scour stops or trench stops may be required. To enable easy location, scour and trench stops shall be placed at intervals of equal length with spacing not exceeding that which is specified. The actual spacing and number of stops shall be nominated on layout drawings.

iii. Grade changes between pipe reaches

It is essential in the lower reaches of the sewerage system, where sewage may have low dissolved oxygen levels, that turbulence leading to the release of hydrogen sulphide from solution be avoided. In these areas, conditions such as a rapid change from steep to flat pipe slope, which favors the formation of a hydraulic jump at dry weather flows, must be avoided.

3. Structural Design

3.1 Sewer pipe materials and construction methods

3.1.1 Types of pipe

Sewers shall be constructed from materials proven to be structurally sound and durable, and shall have satisfactory jointing systems. The use of two or more types of pipe material on a single run of pipe between adjacent maintenance holes is not acceptable.

Materials approved for use in sewers are:

- Vitrified Clay - VC
- Reinforced Concrete - RC, see notes 1, 2 and 3
- Ductile Iron - DICL, see notes 1, 2
- Unplasticised Poly Vinyl Chloride – uPVC (Equivalent to class SEH, solid wall or approved structured wall), **150mm x 3m RRJ SN8 pipes and junctions are Councils preferred material**
- Glass Reinforced Plastics - GRP, see note 4 (Polyester Based)

- Polyethylene – HD-PE, see note 4

Notes

1. Not to be used within, nor up to 1 km downstream of industrial areas or hospitals.
2. Concrete shall be made with Type "SR" sulphate resisting cement with a tri-calcium aluminate content not greater than 5%, or Type "LH" low heat cement. Concrete pipes intended for other than trunk sewers shall be manufactured with a minimum 10mm sacrificial layer on the inside of the pipe.
3. Concrete pipes are not acceptable for DN150 and DN225 sewers.
4. Subject to special conditions and only with written approval of Lithgow City Council.

Proposals for the use of other materials will be considered if supported by adequate technical and performance data.

Where the pipe material is known it shall be shown on the drawings. Where the pipe material is not known prior to submission for detailed design acceptance, the drawings are to contain notes ensuring that the above requirements are satisfied.

4.1.2 Class of pipes

- Sewerage pipes must be of adequate strength to meet overburden and traffic loads. Loads are to include loads created from likely construction and maintenance activities;
- VC pipes shall be Class 4 or stronger;
- Class 2 (X), 3 (Y) and 4 (Z) reinforced concrete pipes manufactured in accordance with the latest version of AS 4058 are acceptable if used in accordance with the requirements of AS 3725;
- uPVC pipes shall be of grade Sewer Extra Heavy (SEH) or of equivalent SN grade in accordance with AS/NZS 1260;
- Classes for Ductile Iron, Glass Reinforced Plastics, Polyethylene, or ABS pipes shall be approved by Lithgow City Council prior to use.

Notes

1. Where load limits apply the locations shall be clearly designated on drawings.
2. During the construction phase specific load provision shall be made for heavy construction equipment where required.
3. No more than one type of pipe material will be used between successive maintenance holes or sewer maintenance shafts.

4.1.3 Pipe jointing

The sewer pipes are to be capable of excluding groundwater, resisting root intrusion, and withstanding pressure loading, both internal and external. Sewer systems must also have some flexibility, either through controlled deflection at joints (rigid materials) or pipe bending (flexible materials).

Acceptable pipe jointing systems are:

i. VC pipes with rubber ring jointing comprising:
    - Spigot - Socket system;
    - Spigot - Spigot system utilising approved Socket-Socket coupler.

ii. Reinforced Concrete Pipes, Spigot-Socket, with rubber ring jointing.
iii. PVC pipes:
    - DN100: solvent welded;
    - DN150: rubber ring jointed or solvent welded; *
    - Larger than DN150: rubber ring jointed. *

Note: For proclaimed mine subsidence areas, the Mine Subsidence Board should be referred to for advice of subsidence design parameters for proposed drainage systems.

4.2 Depth of sewer and cover

i. Depth of Cover

Sewers shall be laid with a depth of cover, measured from the top of the pipe socket or inspection opening to the ground surface as per section 3.7 of AS/NZS 3500.2, unless the product specific Standard specifies, or the manufacturer recommends, a greater depth.

ii. Maximum Depth

Sewer mains are to be designed for a maximum depth to invert of 5.0 metres. In special cases (e.g. to avoid a pump station or for a short length of line through a ridge) specific approval may be sought from Council to exceed this limit.

4.3 Sewer main junctions

Within a sewerage system it is mandatory that all sewer main junctions occur within maintenance holes. However, DN150 sewer tie connections can be connected by means of maintenance holes or sloped junctions. For connection of service ties see section 4.4.

4.4 Sewer Service Connections

Service ties (house junctions)
A sewerage service is to be provided for each property; joint sewerage services are prohibited under the *Local Government (General) Regulation 2005, Part 6, Division 3, section 162.*

4.4.1 Location

A service tie connecting to a sewer outside a residential block should generally be at right angles to the sewer. Where a service is a maintenance hole (manhole) or "dead-end", the service shall be at an angle between 90° and 180° from the downstream sewer to ensure a smooth flow of entry into the main line.

Service ties shall be located clear of all authorities easements, driveways and retaining walls.

Where the sewer main is located outside of the residential block, the service tie shall extend inside the property boundary and an inspection shaft extended vertically upward to the surface ground level to form a shaft. The tie should generally be located on the sewer main line at 1.0 metre from the lowest corner of the property and extend 1 metre into the boundary.

The upstream end of any "dead-end" sewer shall extend to at least 1 metre past the boundary to accommodate a service tie within a maintenance hole.

4.4.2 Size of Tie

Sewer service ties are normally 150mm solvent welded pipes or rubber ring (in mine subsidence areas). For multiple dwellings a single tie is to be provided per property.

4.4.3 Depth of Tie

A service tie is required to serve the entire leased block. However where building restrictions do not permit part of the block to be developed (e.g. set back distances from the front building line), then depths need to make allowance for this limitation.

In calculating the depth the designer should be familiar with the requirements for grade and depth provided in *AS/NZS 3500.2 sections 3.4 and 3.7.*

An acceptable design will have the following minimum depths of tie:

- For residential blocks: calculated on the basis of minimum cover with a property of 300mm and a maximum possible length of house drain at a grade of 1 in 60

- For residential blocks: calculated on the basis of minimum cover with in the property, if subject to vehicular traffic, of 500mm and a maximum possible length of house drain at a grade of 1 in 60.

4.4.4 Grades

The service tie shall have a minimum grade of 1.0 % and a maximum of 20 %. For ties to deep sewers, a buried vertical riser is to be used (refer section 4.4.5)

4.4.5 Buried Vertical Risers (BVR)

On deep sewers that are near boundaries it may be necessary to use a BVR. These are to be noted on work-as-executed drawings

It is absolutely critical that BVR's are installed on a compacted trench base with suitable concrete support

4.4.6 Manholes

Manholes shall be located along a sewer main at all changes in grade, level and direction and at the intersections with other mains or dead-ends. Manholes will not be accepted within the carriageway of public roads.

The maximum permissible spacing between adjoining manholes is 80 metres.

Manholes are to be designed so that sewage is not forced to deflect by an angle of more than 90 degrees.

Manholes shall be constructed using 20 MPa concrete cast in-situ base. Either Type C or Type D cement shall be used in the concrete mix.

Chamber and covers shall be constructed from precast concrete components of a type authorised by Council.

Drop manholes or Jump-ups may only be used to avoid underground services, or at the intersection of shallow and deep mains where the difference in the invert level exceeds 450mm. The maximum difference in invert levels is 2.0 metres. Drop manholes or Jump-ups are to be constructed as per the requirements of *section 4.10* of *AS/NZS 3500.2*

5. Testing

All drainage work is subject to testing and shall comply with the with the requirements of *section 12 of AS/NZS 3500.2*

Water

1.1.1 General

Lithgow's Water Supply System is to be designed with due regard to the continuing maintenance requirements after the works have been constructed. A system that can be easily and economically maintained is essential.

1.1.2 Special Equipment

The purchase of special maintenance equipment and plant requires considerable lead times, special approvals and funding. As a consequence, no design incorporating the need for special or unusual equipment should be prepared without the prior written approval of Lithgow City Council.

This requirement also extends to the need to use special techniques or hired equipment. To ensure that maintenance personnel can respond and overcome operational problems consistent with service objectives, it is essential that maintenance of the system is not dependent on non-standard techniques or equipment

2 Location of Water Mains

Water mains shall be constructed within road or public reserves or require the creation of a 3 metre wide easement for water supply, in favour of Council and subject to approval by Council. The pipe is to be centrally located within that easement should approval be given.

Easements across privately owned lands should be avoided.

Marking tape to *AS 2648* shall be laid in a continuous length on top of the pipe embedment material, 150mm above all water mains.

2.1 Provision of branches for future connection

Many branches provided for future development turn out to be either the wrong size, in the wrong place, or not eventually required. Temporary end caps on such branches are often not satisfactorily anchored, and become a liability if the branch is not subsequently used. To avoid this, the following is required:

- branches for future development shall not be provided unless the alignment and diameter of the future connecting mains are confidently known, and the extension is to occur within a short time span (less than 12 months);
- To avoid anchorage problems and future shut downs of the main, a flanged branch with a stop valve is preferred to a branch with an end cap. Valves shall be blank flanged. Where an end cap is necessary a full and adequate thrust block shall be provided;
- Where a branch is proposed to be laid across a road, the section across the road should be end capped at both ends rather than connected at one end initially (to avoid future road openings). If the pipes are not to be connected within 24 months, consideration should be given to charging it via a DN20 service connection and then flushing periodically.

3 Material, Size and Cover Requirements

Unless specifically approved otherwise by Lithgow City Council, pipes for water supply shall be selected from the following approved materials:

- Ductile iron, cement lined and rubber ring jointed, produced in standard lengths of 5.5 metres to AS 2280, having sizes of DN100, 150, 225, 300, 375, 450, 500, 600 and 750. For pipes up to DN300 an approved seal coating on the internal cement mortar lining is applied to reduce leaching. Class K9 shall be used for general application and class K12 where additional structural capability is required;
- PVC Class 16 to AS/NZS 1477 Series 2, having sizes of DN100, 150, 225, 300 and 375.
- **Modified PVC (PVC-M) Class 16 to AS/NZS 4765 (Int) Series 2**, having sizes **DN100,** 150, 225, 300, 375 and 450.
- Molecular Oriented PVC (PVC-O) Class 16 to AS/NZS 4441 (Int) Series 2, having sizes DN100, 150, 225, 300 and 375.
- for sizes above DN750, steel pipe to AS 1579, cement mortar lined to AS 1281, and externally coated with fusion bonded polyethylene;
- PE, pressure class PN16, to AS/NZS 4130 having size DN63. Direct tapping not permitted.

The minimum **cover to water mains** shall normally be **750mm** in roadways or traffic areas and 600mm elsewhere. The minimum **cover to water services** shall be 450mm in roadways or traffic areas and 375mm elsewhere. Provision shall be made for transient loads such as construction equipment where cover is reduced during the construction phase.

A pipeline shall be lowered when cover is removed from existing pipelines for new works (such as roads). If this is physically impossible then consideration shall be given to protection by a suitably designed reinforced concrete relieving slab; extending at least 500mm into natural ground beyond existing pipe trench lines. This slab shall be segmented by construction joints into maximum l.0 metre long easily removed segments, and separated from the pipe obvert by no less than 25mm of granular or compressible material.

Thrust or anchor blocks of plain or reinforced concrete, which have been designed to resist unbalanced hydraulic forces, shall be provided at all bends, tees, tapers, in-line stop valves and dead ends.

To limit the scouring effect arising from water flow within the pipe bedding material, and also to anchor the pipe, special bedding, trench stops and scour stops may be required. Scour stops shall be provided along inclined mains where the slope is 5 to 30%. Trench stops can be regarded as an alternative to scour stops and may be provided along inclined mains where the slope is 5 to 15%. To enable easy location, trench and scour stops shall be placed at intervals of equal length with spacing not exceeding that which is specified

4. Service Connections

Water service connections works are to be undertaken under the provisions of *section 152 of the Local Government (General) Regulations 2005*

Water services should be of single service drawn **copper pipe, Type A,** manufactured in accordance with *AS 1432*. Services are to be a minimum of 20mm diameter, with 1.4mm wall thickness.

Right angled 90 degree brass lockable meter ball valves to be used as meter control valves and a type approved by the Water and Wastewater Manager. Council will secure the water meter valve with a stainless steel locking device prior to the subdivision certificate being released.

Water meters to be purchased by the owner after submitting to Council an Application for Work at Owners Cost Payment Authority Application and the completion of a Water Service Connection Application. Council will installed the meter when a Development Application has

been approved for the new allotment and a S68 Approval granted for connection to draw water.
Brass or copper capillary fittings are to be installed at all joints, branches, and bends. Meter boxes, meters, maincocks and elbows are to be of a type approved by the Water and Wastewater Manager or alternatively these fitting can be provided by Council at full cost recovery.

Separate metered water services are to be provided to every allotment, as well as parks, reserves and landscaped roundabouts.

The meter box for each lot should be located approximately **500mm outside the front and side property boundaries**. Services should be located in pairs at side property boundaries. Note that the stop valve should be located no more than 450mm from the water meter, measured from the road alignment.

All service connections should cross the road perpendicular to the road centreline. Non-detectable marking tape to *AS 2648* shall be laid 150mm above all water services. Such connections should be marked on each kerb with a "W"

A Work as Executed plan (WAE) **MUST** be submitted to council prior to the release of the linen plan, outlining the following:

- Service meter location
- All main isolation valves hydrants and scours
- Water mains lay out and property services

5. Pipe Fittings
Fire hydrants of an approved type are to be installed along the water main at such convenient distances, and at such places, as may be necessary for the ready supply of water to extinguish fires accordance with AS/NZS 2419.

On water mains without hydrants (e.g. generally bulk supply mains), scour (or drain) outlets, with isolating valve control, shall be provided at all low points. Wherever possible, on water mains with hydrants (e.g. reticulation), a hydrant should be located at or near all low points, and are to be discharged via a pipe to a storm water drainage pit.

Stop valves are generally located adjacent to tees, and so that no more than 25 properties are isolated at any one time, by closing no more than four valves. To close a valve, the spindle will turn anticlockwise, as viewed, when facing the spindle cap.

Provision shall be made concerning air release from all high points on water mains. This should normally be achieved in reticulation mains by means of a fire hydrant, a branch, or a service pipe located at the high point. Where this cannot be achieved a DN25 single orifice air valve should be provided.

All maincocks, tees, hydrants, stop valves, scour valves, and air valves should be located within the public footway and shall be of type approved by Council.

All gibaults are to be long sleeved.

At road intersections, two forty-five degree (45o) bends should be used to negotiate the corner.

Thrust blocks shall be provided at all bends, tees, valves and dead-ends.

All valves and hydrants shall be enclosed within valve chambers.

Markings and indicator posts shall be provided at all hydrants and valves.

6. Testing
Prior to acceptance of the water reticulation network, all pipelines shall be inspected and pressure testing will be carried out.

7. Mains in Cul-de-Sacs

Where the cul-de-sac incorporates an adjacent street connected by a pathway, or ends in a public reserve, the water main shall extend through the pathway or reserve so that a dead-end is not created in the main.

In all other cases, the main is to be looped around the cul-de-sac.

Work as Executed Plans

Following the satisfactory completion of works, 'Works-As-Executed' (W.A.E.) plans prepared by a registered surveyor or professional engineer shall be submitted to Council's Group Manager of Operations. Such plan must be lodged prior to the release of the subdivision linen plan, or prior to occupation or use of the development.

The W.A.E. plans shall be Engineering Drawings as modified, and shall include the following items:

- invert levels of all drainage and sewerage lines at entrance and exit of MH;
- location, class, size, and material of all pipes and subsoil lines;
- location and diameter of service conduits;
- location of stop valves, hydrants, water services,
- longitudinal sections for each sewer main,
- depth of sewer manholes,
- sewer man hole schedule numbered
- location of sewer junctions measured from downstream of MH
- minimum depth and cover, maximum depth, grade, chainage, inverts,
- storm water and interallotment drainage pits;
- location of water meters and serial number of meter installed in relation to the lot it is installed on
- site regarding details – finished surface levels at centre of front and rear boundaries;
- the location and level of any permanent survey marks;

Each Works-As-Executed plan must include certification by the Registered Surveyor responsible for the preparation of the plan